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ABSTRACT

This document is a collection of newsletters containing information on environmental education and environmental issues. The newsletters, produced by the ERIC Information Analysis Center for Science, Mathematics and Environmental Education, contain information concerning programs, materials, and resources related to environmental education. There is a focus on international programs related to environmental education and environmental problems, sources of financial assistance for environmental education, ecology action groups and conferences, and reviews of research related to environmental education. The last issue in this packet, Vol. 3, No. 6, was the last that will be printed. (JP)

SMEAC

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U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
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CENTER COMMENTS

SEIAC → SMAC → SMEAC

To keep pace with expanding responsibilities, the name of this Center has been changed. The Center originally processed documents only in the area of science education and our maiden name was Science Education Information Analysis Center (SEIAC). When responsibility for processing documents in mathematics education was added, we became the Science and Mathematics Information Analysis Center (SMAC). In September, 1971 we were designated as the processing center for environmental education. We are now known as the Science, Mathematics, and Environmental Education Information Analysis Center (SMEAC).

We feel that those areas we now encompass form a natural union and are mutually supportive. If readers of this newsletter would like to receive the Science or Mathematics Education Newletters as well, they should return the coupon on page three.

Review of Research Completed

A review of research studies related to environmental education has recently been completed by Robert E. Roth and Stanley L. Helgeson of ERIC/SMEAC. Over 80 studies having relevance to environmental education were identified and reviewed. Most of the studies included were reported in the 1950-1970 decades. Many are oriented toward outdoor or conservation education and may be considered forerunners of environmental education as it is currently viewed.

The review will be published by The Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio. After publication, the document will be announced in *Research in Education* (RIE) and in a future issue of this newsletter. Requests to purchase the Review will be accepted following the publication announcement.

ORNL Initiates Toxicology Information Center

The Oak Ridge National Laboratory's biology division has established a toxicology information center, designed to answer questions and supply information on toxicology of pesticides and other potentially hazardous chemicals in the environment. Expansion to other aspects of toxicology, such as drug interactions and their adverse effects, is planned. Data are being compiled in machine-readable form under the direction of David G. Doherty, an ORNL biochemist.

ERIC/SMEAC Develops Bibliographies of Environmental Education Topics

A series of bibliographies dealing with various aspects of environmental education are in the process of development by staff members of ERIC/SMEAC. Included will be books and reports, journal articles, organizations and sources of information, and non-print materials.

Topics of the bibliographies include: Air, Curriculum, Education, Energy, Minerals, Noise, People (population), Pesticides, Plants and Animals, Recreation, Solid Wastes, and Water.

Anticipated completion date of these bibliographies is May, 1972. Announcement of availability and cost will be made upon completion.

Survey Shows 14% of Pupils Studied Environmental Health

About 23 per cent of all public elementary and secondary schools in the United States offered courses in environmental health during the 1969-70 school year, according to a management bulletin from the National Center for Educational Statistics of the United States Office of Education. This represented the first time that statistics on environmental health courses were gathered, and no trends were projected from them.

According to the report, about the same percentage of elementary as secondary schools offered environmental health courses, in the survey defined as "learning experiences designed to help the pupil understand the effect upon man's health and well-being of such environmental factors as water supply, pollution control, food contamination, air pollution, radiation exposure, crowdedness, noise, and mobility."

About 14 per cent (6.3 million) of the nation's 43.7 million public elementary and secondary pupils were enrolled in such courses. This included 18 per cent of the 23.9 million elementary school pupils. and 9 per cent of 17.2 million secondary school pupils.

Few public secondary schools were found to offer environmental health occupation courses, and less than 0.5 per cent of the secondary school pupils were enrolled in them, according to the survey.

In the 1969-70 sample survey, a *slightly greater* per cent of secondary pupils were reported to be enrolled in environmental health than in earth-space sciences, chemistry, or physics courses. About *twice as many* secondary pupils were enrolled in general science or biology courses.

The survey sample consisted of about 1200 public elementary and secondary schools, representative of the nation's 81,000 local public schools.

Air Pollution Education Materials Prepared by EPA

The Institute for Air Pollution Training, a part of the Environmental Protection Agency, has as its objective the professional training and development of personnel employed in air pollution control activities. A variety of short term courses, seminars, and workshops are developed and conducted by the faculty and staff of the Institute, both at its headquarters, located near Durham, North Carolina, and at points throughout the country. The students for these courses generally come from industry as well as from federal, state, and local agencies. In addition, training courses for university personnel are available in some areas.

Courses taught by the Institute range from the general orientation level courses to advanced, specific technical courses. Effort has been made at all levels to introduce a variety of instructional methods. Some of these include:

(1) An urban simulation exercise, known as APEX, designed to provide students with experience in the complexities of decision-making in environmental control. Both computer-based gaming and role playing are involved. This exercise has been and is being implemented at several universities.

(2) A computer-based classroom exercise giving students experience in evaluating the relative economic and environmental effectiveness of various methods of air pollution control.

(3) Individualized self-instructional packages which will enable students to meet many of the objectives of appropriate courses. An orientation level course, "An Introduction to Air Pollution Control," is currently being used in many agencies throughout the country. Each section of the course contains a cassette tape with supporting printed and visual material. A second course, also at the introductory level, consists of a series of programmed texts, each covering a separate aspect of air pollution control.

These materials are available to universities and other institutions involved in environmental education at this level. Inquiries should be directed to:

George Ziener
Instructional Development Section
Institute for Air Pollution Training
Environmental Protection Agency
Research Triangle Park, North Carolina 27711

CEGS, NAGT Cosponsor Symposium Relating Geology to Environmental Education

A symposium, *Broadening the Horizons of Geology through Environmental Education,* was developed and presented by the Professional Development Panel of the Council on Education in the Geological Sciences (CEGS) at the annual convention of the Geological Society of America (GSA) in Washington, D.C., on November 3.

The symposium, sponsored jointly by CEGS and National Association of Geology Teachers (NAGT), was cochaired by William E. Davies and Robert G. Reeves. Among the speakers were M. King Hubbert (USGS), William J. Wayne (U. Nebraska), Victor J. Yannacone, Jr. (Patchogue, NY, Environmental Lawyer), Don U. Deere (U. Illinois), Ernest Hardy (Cornell U.), and Charles F. Withington (USGS).

USDA Offers Visual Aids

The U. S. Department of Agriculture has announced the availability of the following teaching aids:

Our National Forests, No. C-127, a 41-frame set available as mounted slides ($11.00) or as a filmstrip ($5.50), which is advertised as "suitable for all age groups but of special interest to school children." Multiple uses of National Forests are stressed. Slide sets may be purchased from:

Photography Division
Office of Information
U. S. Department of Agriculture
Washington, D.C. 20250

The filmstrips may be purchased from:

Photo Laboratories, Inc.
3825 Georgia Avenue, N.W.
Washington, D.C. 20011

A 16-mm, sound, color, film, *The Eternal Forest,* is available for purchase or loan; it deals with man and his environment—specifically forests and woodlands. Considered are misuse and neglect of North America's primeval forests during the years of national growth and expansion, growing awareness of the extent of depletion, and efforts to restore nature's balance. This 20½ minute film is cleared for TV, and was narrated by Gregory Peck.

Information concerning loan or purchase may be secured by writing:

Motion Picture Service
Office of Information
U. S. Department of Agriculture
Washington, D.C. 20250

New Jersey Conservation Foundation Publishes Curriculum Guides

A third printing of *Education for Survival,* Grades 1, 2, 3, originally published in 1970, has made this interdisciplinary teachers' guide again available. The guide offers an in-depth curriculum, integrating environmental concerns into social studies and science subjects (241 pages; $5.00). Grade 4, published in spring 1971, is also available (87 pages; $3.00).

The guides, written and developed by educators, teachers, and environmentalists, have been published by the North Jersey Conservation Foundation, a non-profit membership organization.

Books may be ordered from:

N.J.C.F.
300 Mendham Road
Morristown, New Jersey 07960

Refractometer/Salinometer Introduced

Environmental Devices Corporation has produced a refractometer/salinometer which measures salinity to an accuracy of ±0.1 parts per thousand over a range of 0-45 parts per thousand. The optical system eliminates electronic circuitry; it makes use of the relationship between refractive index of seawater and salinity.

For further information, contact:

Environmental Devices Corporation
Tower Building
Marion, Massachusetts 02738

Field Guide, AMI Booklet Added to NSTA Series

A field guide in *How to Read the Natural Landscape of the Forests and Fields,* has been developed by Millard C. Davis, editorial associate with the National Science Teachers Association.

This paper sets the original natural scene over the eastern portion of the United States, from the Atlantic Coast to the Mississippi River. Local conditions are shown to affect plant and animal species, and variances in these species are used to indicate subtle aspects of local environmental conditions. In addition, examples are presented as exercises in reading the landscape, in seeing a whole view by using a few parts.

Teachers and others seeking new techniques in audio-visuals may wish to consider a new booklet, *How to Present Audible Multi-Imagery in Environmental Education.* Prepared by Pascal L. Trohanis of the Education Technology Center of the University of Maryland and published by NSTA, this aid explains a creative approach in AVs.

Audible Multi-Imagery (AMI), the process described in this publication, is the development and display of two or more simultaneously projected visual images. This can be done with or in combination with 2 x 2-inch slides, motion film, and/or overhead transparencies, coupled with a sound or audio track. AMI applies to subjects that are best revealed in a comparative, contrasting, or sequential fashion. This is especially useful in environmental materials, where the situation often has ambivalent values. However, it fits any situation where combinations and relationships are important.

These are the fifteenth and sixteenth in the NSTA "How to . . ." series, those interested should order direct from NSTA:

NSTA
1201 Sixteenth Street, N.W.
Washington, D. C. 20036

Price of either, per copy: $.50. Discounts: 2-9 copies of one title, 10 per cent; 10 or more copies, 20 per cent. Payment must accompany all orders except those on official purchase order forms. Postage and handling charges will be added to billed orders.

K-12 Environmental Improvement Lesson Plans Available

Lesson plans for teachers who want to increase their pupils' understanding of environmental improvement have been developed by C. E. Hamilton, an aquatic chemist with Dow Chemical Company. Geared to grade levels from kindergarten through high school, the teaching guide focuses on basic experiments that can be performed with commonly available materials.

Copies of the guide, at $1.00, are available from:

Inquiry Services
Dow Chemical, U.S.A.
2030 Dow Center
Midland, Michigan 48640

SCS Reprints Glossary

A *Resource Conservation Glossary* containing 1618 selected terms from thirteen technologies including agronomy, biology, conservation, ecology, economics, engineering, forestry, geology, hydrology, range, recreation, soils, and watersheds has been published by the Soil Conservation Society of America.

The 52-page paperback originally was provided for all members of SCS. It was developed over a period of three years by a special committee formed in the Lincoln, Nebraska, Chapter of SCS, and was designed to be of aid to all professionals employed in conservation, students, administrators, and clerical personnel.

Single copies are available at $5.00 each; 2-9 copies at $3.00 each; 10-49 copies at $2.50 each; 50-99 copies at $2.00 each; and 100 or more copies at $1.50 each.

Orders should be placed with:

Soil Conservation Society of America
7515 N. E. Ankeny Road
Ankeny, Iowa 50021

The ERIC Information Analysis Center for Science, Mathematics, and Environmental Education produces separate newsletters for three interest groups. If you would like to receive our other newsletters, please complete and return this coupon.

1. Please indicate which newsletter(s) you want to receive.
   _______ Environmental Education
   _______ Science Education
   _______ Mathematics Education
2. Name ____________________
   Address ____________________
   City ____________________ State ____________________
   Zip Code (for U.S.) ____________________ Foreign Country ____________________
3. Current Position
   Title ____________________

Clip and mail to: ERIC Information Analysis Center for
Science, Mathematics, and Environmental Education
1460 West Lane Avenue
Columbus, Ohio 43221

NSTA Publishes Compilation of School EE Programs

The latest National Science Teachers Association compilation of active environmental programs held by schools became available this Autumn. *Programs in Environmental Education* is offered as an aid to teachers, curriculum planners, and others interested in examples of current environmental education programs. NSTA sought information about these programs through an inquiry form that was sent to all the state supervisors of science, all members of the National Science Supervisors Association, and school systems represented in the NSTA curriculum bibliographies. The primary purpose was to locate materials that are available to others, and so NSTA requested that schools report only those programs that could handle inquiries, either by mail or in person.

Other current NSTA publications relating to the environment are *Vital Views of the Environment*, edited by Mrs. Mary E. Hawkins, and "Environmental Investigations—Getting Help from Uncle Sam" (a summary of environment-related activities of government agencies with a listing of representative publications from each), reprinted from the October 1971 issue of *The Science Teacher*.

Those interested may order directly from NSTA:

NSTA
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

Price per copy: *Programs in Environmental Education*, \$1.50; *Vital Views of the Environment*, \$1.50; "Environmental Investigations—Getting Help from Uncle Sam," \$.50. Discounts: 2-9 copies, 10 per cent; 10 or more copies, 20 per cent. Payment must accompany all orders except those on official purchase order forms. Postage and handling charges will be added to billed orders.

Environmental Text Teaches "Science With Garbage"

Budget strapped administrators may well be attracted to a new supplementary environmental text, *Teaching Science with Garbage* by Albert and Vivian Schatz. Materials called for include nothing more expensive than a cup of garbage, used paper napkins, nails, steel wool, aspirin, dirt, soil or mud, empty jelly jars, etc.

According to the authors, "Science is taught most effectively when it relates directly to the world in which students live. Environmental science should, therefore, be concerned, first and foremost, with the students' immediate environment. That is their home and community. Garbage is a good problem to begin with because it affects everybody. Furthermore, garbage is visible. It is very concrete, always available, and costs nothing."

The purpose of this teaching guide, which contains experiments appropriate for students from first grade through senior high school, is to develop understandings of the importance of natural cycles and the interrelationships of all things in the environment.

The text, at \$1.50 per copy, may be ordered from:

Rodale Press Book Division
33 East Minor Street
Emmaus, Pennsylvania 19049

EPA Offers Courses in Solid Waste Management

A variety of short-term courses in solid waste management are being conducted by the U. S. Environmental Protection Agency under the direction of its Solid Waste Management Office in Cincinnati, Ohio. The courses are directed primarily toward sanitary engineers and sanitarians, supervisors of public and private collection and disposal systems, planners, elected officials, and personnel from federal or state installations.

Courses run from one to four days in length; some are taught in Cincinnati, while others are taught at field locations under special arrangements between the sponsoring agency and an interested group. Among the courses offered are: Elements of Solid Waste Management, Principles of Incineration; Principles of Sanitary Landfill; Solid Waste Operations Management; Dump Closing . . . Alternative Procedures; Solid Waste Management Planning; Solid Waste Management Planning Workshop.

For information on the courses and/or a current listing of courses being offered in Cincinnati or available in the field, contact:

Chief, Training Branch
Division of Technical Operations
Solid Waste Management Office
U. S. Environmental Protection Agency
5555 Ridge Avenue
Cincinnati, Ohio 45213

Environmental Emphasis Provided by Earth Corps Study Program

An Earth Corps Study Program designed for grades 1 through 6 has been announced by Scholastic Book Services. It is comprised of activity-oriented teaching units with an environmental emphasis, developing concepts in the social studies and the sciences, and is designed for use with whole class, small groups, or individual students.

Activity books provide the core of each unit, but other materials are utilized as appropriate—transparencies, posters, photos, records, song sheets, charts, etc. Teaching manuals are included among the materials.

A 180-frame, sound, color filmstrip, *Earth-Oasis in Space*, was produced by Contemporary Film Associates for use with the program. Its running time is about ten minutes. The filmstrip compares earth to a spaceship of limited resources, pointing up how long and complicated was the development of earth and how fragile its life-support systems are.

More information concerning this program may be obtained from:

Scholastic Book Services, Inc.
904 Sylvan Avenue
Englewood Cliffs, New Jersey 07632

"The Instructor" Publishes Outdoor Education Activities Booklet

A 48-page booklet containing a compilation of field-tested outdoor activities introducing basic projects for small group or individualized study in monitoring certain aspects of the environment has been published under the auspices of "The Instructor Publications."

It is *Outdoor Activities for Environmental Studies* by Clifford E. Knapp, and was sponsored by The Department of Conservation and Outdoor Education of Southern Illinois University. The purpose of the booklet is to provide teachers with new ways to involve children directly in meaningful and developmental learning activities and to help students become more sensitive and understanding of the quantitative aspects of their environment. An interdisciplinary approach is utilized with lesson plans allowing for a wide variety of student abilities and grade level use.

Projects include: measuring horizontal and vertical distances, slope measurements; using a hypsometer, clinometer, and Secchi disk; moving water; soil compaction and water absorption; wind speed; construction and use of a sun dial. For each project or lesson, background information is provided in addition to objectives, concepts, vocabulary, materials needed, instructional procedures and activities, and ideas for further investigation.

Those interested in this publication should contact:

The Instructor Publications, Inc.
Dansville, New York 14437

"Leaders in O.E." Directory Available

A directory of *Leaders in Outdoor Education*, listing backgrounds and current activities, has been developed by Dr. Orville E. Jones and Professor Douglas E. Wade and published by the Lorado Taft Field Campus of Northern Illinois University, as a result of a survey recently completed.

Copies of the directory are available at $2.00 per copy from:

Dr. Orville E. Jones
The Lorado Taft Field Campus
Northern Illinois University
Oregon, Illinois 61061

ORAU Develops Pollution Detection Kits

The Oak Ridge Associated Universities are now developing a "Do-It-Yourself" package which could enable high school students to monitor the air, water, noise and radiation pollution levels in their home communities.

Under a $17,000 grant from NSF, ORAU will develop, test, and distribute a multiple-instrument kit containing basic electronic components which students can use to build the devices themselves. For information, contact:

ORAU Information and Exhibits Division
P. O. Box 117
Oak Ridge, Tennessee 37830

Sound Filmstrips Explore Urban Problems

Pressing environmental problems are presented in a new color sound filmstrip series, "America's Urban Crisis, Group 1," recently released by Society for Visual Education, Inc.

The six filmstrips in the series explore urban dilemmas where industrial and technological achievements and personal irresponsibility have created by-products that menace the quality of urban life. These by-products include air pollution, water pollution, and the problems of waste disposal, transportation and housing.

On-the-site photography in six major urban areas, plus additional pictures in other areas, give the series a national scope. Archive photographs and reproductions of newspaper headlines present the historical background of the urban crisis. Charts, graphs and maps are used to illustrate the problems. Problem-oriented segments at the end of each filmstrip are placed to stimulate classroom discussion and individual thought.

For use in social studies, environmental studies, and science (ecology-conservation), the series is aimed at the intermediate, junior and senior high school student. Titles in the series are:

THE ROOTS OF OUR URBAN PROBLEMS
(63 frames, 15½ minutes)
THE AIR POLLUTION MENACE
(64 frames, 16 minutes)
WATER POLLUTION—A COMPLEX PROBLEM
(63 frames, 15 minutes)
SOLID WASTE—A NEW POLLUTANT
(63 frames, 15 minutes)
THE TRANSPORTATION CRISIS
(60 frames, 16 minutes)
THE HOUSING CRISIS
(53 frames, 15½ minutes)

"America's Urban Crisis, Group 1," is available as a complete set with teacher's guides and three back-to-back long-play records for $51.50. With three tape cassettes the set is priced at $57.50.

For further information, contact:

Society for Visual Education, Inc.
Department #71-10
1345 Diversey Parkway
Chicago, Illinois 60614

AFI Develops Tape Program on "Trees and Air"

A tape program entitled "Trees and Air" has been prepared by the American Forest Institute. This program considers relationships between trees and natural and manmade environment on a scientific basis, then discusses environmental aspects of the interrelationships.

Included are oxygen-carbon dioxide exchange, noise abatement, and deliterious effects of atmospheric pollutants on trees.

Moderator of the program is Phyllis Rock, of AFI. Dr. John Barber, assistant to the Deputy Chief of Research, United States Forest Service, is featured as guest expert.

The tape is available on loan from:

American Forest Institute
1619 Massachusetts Avenue, N.W.
Washington, D.C. 20036

SMEAC

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Dr. Robert E. Roth
Associate Director
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for Science, Mathematics, and
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1460 West Lane Avenue
Columbus, Ohio 43210**

ADDRESS CORRECTION REQUESTED

1240—RF-2228
Environmental Education—Volume 2, Number 1, 1971-72

State Supervisor Network Established by ERIC/SMEAC

A national network of environmental education specialists functioning at the State Department of Education level has been established by ERIC/SMEAC, with the cooperation of state officials. Primary purpose of the network is to serve liaison functions between ERIC/SMEAC and professional educators in the field, providing increased efficiency for both ERIC/SMEAC and state environmental education coordinators and more and better services for the educator.

Early steps in the development of the network included a series of regional conferences for state environmental education coordinators, held in September 1971 and sponsored by ERIC/SMEAC. Conferences were held in: Columbus, Ohio; Boulder, Colorado; Portland, Oregon; Newark, New Jersey; and Atlanta, Georgia, and were attended by representatives of more than 40 states.

Among areas of cooperation already identified and initiated are:

1) Identification of outstanding environmental education projects and programs within each state;
2) Development of a newsletter for state environmental education supervisors;
3) Development and dissemination of instructional kits;
4) Dissemination of state plans for environmental education; and
5) Increased accessibility of ERIC/SMEAC services.

Educators within the states are encouraged to contact state coordinators for information concerning projects, programs, and services. The state coordinators are listed, beginning on page 2 of this **News Bulletin**.

ENVIRONMENTAL MERIT AWARDS PROGRAM UNDERWAY

A Presidential Environmental Merit Awards Program has been established to recognize the achievements of high school students who have made constructive environmental contributions during the scholastic year. The program was announced in November by **William D. Ruckelshaus**, administrator of the Environmental Protection Agency. EPA and the Office of Education have contacted high school principals throughout the country regarding the program.

The program is designed to provide national recognition for the activities of youth in their own communities. Project guidance, evaluation of programs, and presentation of awards will be made at the local level. An awards panel composed of faculty, student and community representatives is to be appointed by each participating school principal.

Awards will be judged on the basis of service in the fields of educational achievement, environmental awareness, community service, or public affairs. If there is a positive outcome of a project, this will merit presentation of the President's Environmental Merit Award.

Examples of the educational achievements category would be the conducting of pollution surveys, a comparative analysis of environmental legislation developed by a history class, camera contests, or 4-H or FFA reforestation project.

Environmental awareness projects might include presentations at community meetings, sponsorship of ecology fairs, or community attitude surveys on environmental matters published in school newspapers.

Community service could be restoring a stream, landscaping a park, operating a waste recycling center, or staffing a community environmental information services center. Under the category of public affairs, students could present environmental information to zoning boards and sewage districts, work with local authorities to establish a wildlife refuge, or participate in urban renewal projects. The Environmental Protection Agency and the Office of Education have been in touch with school administrators to explain the specific criteria to be used as a guide in judging the projects.

More information may be obtained from:

Arthur W. Peters, National Coordinator
President's Environmental Merit Awards Program
U.S. Environmental Protection Agency
Washington, D.C. 20460

What is E.E.?

Speaking at a conference on the Environmental Quality Education Act for Great Lakes states in Chicago in January, **Dr. George Lowe** of U.S. Office of Education, Environmental Education, commented on ten items of primary importance in the E.Q.E. Act:

1. E.E. is **not** conservation education.
2. E.E. is **not** a subject—it is a process.
3. E.E. is multidisciplinary.
4. E.E. is community oriented.
5. E.E. is problem focused.
6. E.E. includes **all** components of society.
7. E.E. builds on the past—good work.
8. E.E. is teacher—student oriented.
9. E.E. is both formal and non-formal.
10. E.E. could be an educational reform.

SE017 938

State Environmental Education Coordinators

Miss Erline Curlee
Science Consultant
State of **Alabama**
Department of Education
State Office Building
Montgomery, Alabama 36104
205-269-7504

Mr. Lawrence C. Hill
Specialist, Environmental Education
State of **Alaska**
Department of Education
Division of Instructional Services
Pouch F
Alaska Office Building
Juneau, Alaska 99801
Seattle Operator: 206-583-0150; 907-586-5486

Dr. Carl E. Beisecker
Arizona State Department of Education
State Capitol Building
Room 116
1626 West Washington Street
Phoenix, Arizona 85012
602-271-5233

Mr. Victor H. Wohlford
Information Officer
State of **Arkansas**
Department of Education
State Education Building
Little Rock, Arkansas 72201
501-371-1461

Mr. Rudolph J. H. Schafer
Consultant in Conservation Education
State of **California**
Department of Education
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721 Capitol Mall
Sacramento, California 95814
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201 East Colfax
Denver, Colorado 80203
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Hartford, **Connecticut** 06115
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General Education: 808-521-3228

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208-384-2205

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Supervisor, Conservation & Environmental Education
State of **Illinois**
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Department of Public Instruction
Indianapolis, Indiana 46204
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Science Consultant
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120 East 10th Street
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913-296-3918

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State Consultant for Environmental Education
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Frankfort, **Kentucky** 40601
502-564-4824

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Supervisor of Environmental Education
State Department of Education
Box 44064
Baton Rouge, **Louisiana** 70804
504-389-5109

Mr. Douglas Stafford
Science Consultant
State of **Maine**
Department of Education
Augusta, Maine 04330
207-289-2541

Dr. James W. Latham, Jr.
Environmental Education Coordinator
Maryland State Department of Education
600 Wyndhurst Avenue
Baltimore, **Maryland** 21210
301-383-3381

Mr. Raymond L. Gehling, Jr.
Supervisor of Conservation Education
State Department of Education
183 Tremont Street
Boston, **Massachusetts** 02111
617-727-5746

Dr. Peggy Miller
ESEA, Title III
State of **Michigan**
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Lansing, Michigan 48902
517-373-1806

Mr. John C. Miller
Environmental Education
State of **Minnesota**
Department of Education
Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101
612-221-6947

Mr. James J. Hancock
Supervisor of Environmental Education
State of **Mississippi**
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ERIC: How to Use It For . . .

Single copies of a twelve-page guide, **ERIC: How To Use It For Environmental Education,** are available at no cost from ERIC/SMEAC. It presents a summary of pertinent information concerning the ERIC system, with emphasis on environmental education functions, directed primarily to those needing a ready digest of ERIC services and procedures.

Similar documents are available through ERIC/SMEAC for science education and mathematics education.

After the Stockholm Conference

(Reprinted, with permission, from **Science** 175, 585 (11 February 1972).

The fate of the U.N. Conference on the Human Environment, scheduled for June 1972 in Stockholm, is in doubt. The Soviet Union and other Communist countries have threatened to withdraw over the issue of East German participation. Preparations for the conference are nearly complete. The Secretariat has finished its work on the basic conference papers, which deal with the six principal themes: human settlements, resources management, pollution, education and information, development and environment, and organizational implications. Cancellation of the conference would not lessen the urgency of responding to these problems—it would delay action.

Whether or not the conference takes place, the preparatory effort has had effects that justify the outlay of money and energy to date. Stockholm has sounded a global alert that has prompted a substantial number of countries to move environmental problems to the center of the political stage. It has spotlighted matters of concerns common to East and West as well as North and South. It has led to a new concept of economic development that includes concern for the quality of the environment. It has prodded governments to reorganize their institutions to accommodate environmental priorities on the national and international levels.

If the conference is held, we can expect an increasing volume of news and comment concerning it as we approach the June dates. Reporters will engage in their usual practice of building up the story. Greater expectations will be raised than can practically be achieved. In part, this is because of the difficulties of achieving common action by more than 100 jealous sovereign states. In part, disappointments would be in store because there are no magic wands or quick paths to a clean environment, to proper resource management, or to solutions of related, complex social problems. One impediment to achieving a livable environment is that we do not really know in quantitative terms what we are trying to achieve. Man has had many adverse effects on the environment, but we have not identified all, or even probably most, of these effects. Beyond that, we are largely uninformed as to rates of change of cogent variables. We have only to contemplate how little is known about environmental effects in the United States and its surroundings to get a picture of how poorly the situation is known in many parts of the world.

We should not expect miracles from Stockholm. Instead, the scientific community, for its part, should begin to look beyond June to the years of sustained effort that will be necessary to fill the voids in our knowledge and to build a basis for informed global action. Already stimulated by the conference, one basis for future action has been outlined in a report entitled **Global Environmental Monitoring.*** This document was prepared under international auspices by a high-quality commission. The report identifies major crucial variables to be measured and outlines components of a monitoring system. It also discusses the technical organization needed for a coherent global monitoring system.

If the Stockholm Conference is canceled, many people throughout the world will feel despair, for it will seem that man is unable to submerge small political considerations to gain common objectives. But there is a brighter side to the picture. The Stockholm conference has already justified the efforts devoted to it, and we begin to see something of the continuing efforts that will go on after June. PHILIP H. ABELSON.

***Global Environmental Monitoring**, a report submitted to the U.N. Conference on the Human Environment (Scientific Committee on Problems of the Environment, International Council of Scientific Unions, Stockholm, Sweden, 1972). Copies are available from Dr. Bengt Lundholm, Swedish Natural Science Research Council, Sveavagen 166 8tr., S-113 46 Stockholm, Sweden.

ERIC/SMEAC, USOE (EE) Develop Cooperative Model

Development of a cooperative model "for communication and functional task accomplishment by which ERIC/SMEAC and the U.S. Office of Environmental Education can each better achieve their respective objectives" is the aim of a project recently instituted by the two agencies.

The project was undertaken as representatives of the two organizations found that duplication of effort with attendant increased cost, as well as some gaps in information obtained, was limiting the effectiveness of each agency, and therefore the total environmental education efforts. Tasks in which both agencies have need for environmental education information have been identified to include:

1. Identification of information, programs, and/or projects dealing broadly with environmental education;
2. acquisition of materials and descriptive documents for further dissemination, analysis, and reporting;
3. preparation of bulletins, newsletters, targeted documents, and information network reports for practitioners in the field, special audiences, and state environmental education supervisors;
4. dissemination of such products and of other materials to educators, administrators, and related practitioners and researchers in environmental education;
5. maintenance of complete, up-to-date "state books" as records of programs, projects, organizations, and personnel actively involved in environmental education.

Projects currently underway include cooperation in procurement and preparation of material for this and subsequent editions of the **Environmental Education Newsletter**, updating and further development of the "state books" mentioned above, institution of compatible filing and retrieval systems between the two offices, and cooperation on a number of additional projects.

Under terms of the agreement, a cooperative mode of operation has been designed such that three and one-half full time employees physically located at USOE (EE), Washington, function under the leadership of ERIC/SMEAC. Task assignments are coordinated by **Dr. Robert E. Roth**, Associate Director for Environmental Education, ERIC/SMEAC, and **Dr. Robert Gilkey**, Director of USOE (EE).

The project began January 3, and will be evaluated during its six-month duration to determine potential value in its possible extension.

FOR PHOENIX TEACHERS . . .

Teachers in the Phoenix, Arizona, area can draw on the state's first Environmental Education Resource Center for aids in teaching ecology courses. Materials in the facility range from reference sources to films and other audio-visual aids. Teachers can receive a catalog of materials for borrowing by calling (602) 252-3911, ext. 275.

SMEAC

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Director

Dr. Robert E. Roth
Associate Director
Environmental Education

Dr. John F. Disinger
Faculty Research Associate
Environmental Education

Dr. Stanley L. Helgeson
Associate Director
Science Education

Dr. Jon L. Higgins
Associate Director
Mathematics Education

ERIC Information Analysis Center
for Science, Mathematics, and
Environmental Education
1460 West Lane Avenue
Columbus, Ohio 43210

ADDRESS CORRECTION REQUESTED

SMEAC

ERIC

EPA, USOE(EE), ERIC/SMEAC Cooperate on Merit Awards Program

Cooperation in development and distribution of information useful to students and schools participating in the President's Environmental Merit Awards Program is being planned by representatives of the Environmental Protection Agency, U.S. Office of Environmental Education, and ERIC/SMEAC.

Discussion at a meeting in Columbus in early March led to identification of potential values for the educational community in coordinated efforts among the three agencies, with particular respect to "How to . . ." information which may be available within the ERIC system but not currently readily accessible to students and classroom teachers. Under the informal agreement, each agency will participate in the development of information concerning the various aspects of the Merit Awards program, including background data, sources, and pertinent administrative information. Publications will be produced and distributed by EPA to all schools enrolled in the program.

Negotiations with other agencies are currently underway.

Schools interested in participating in the President's Environmental Merit Awards Program should contact:

Arthur W. Peters, National Coordinator
President's Environmental Merit Awards Program
U.S. Environmental Protection Agency
Washington, D.C. 20460

Review of Environmental Education Programs and Materials Completed

A project funded by the U.S. Office of Education to review programs and materials related to environmental education has recently been completed. The project, directed by **Dr. Stanley L. Helgeson** and **Dr. Nicholas Helburn,** was a cooperative effort involving personnel from the ERIC Clearinghouse on Social Studies/Social Science (ChESS), the Social Science Education Consortium (SSEC), at the University of Colorado, Boulder, Colorado and the ERIC Clearinghouse on Science, Mathematics, and Environmental Education (SMEAC) at The Ohio State University, Columbus, Ohio.

The project produced Targeted Communications reports intended for three audiences: elementary and secondary school teachers, teachers of urban/disadvantaged, and school administrators. The reports each contain a discussion which provides the reader with an orientation to the problems associated with environmental education and a brief description of the problems and needs identified for the target audience along with a summarization of research related to these needs and problems. Current practices concerning environmental education programs and materials are summarized and recommendations are made for developing and implementing programs and materials. Brief descriptions of selected programs and materials are included as well as case studies describing environmental education program development and implementation.

The three reports will soon be available from the ERIC Document Reproduction Service; ED numbers will be announced in a future issue of this newsletter. In addition, the reports will be summarized and disseminated in the form of a PREP kit by the U.S. Office of Education.

SE 017 938

SSEC SPONSORS CONFERENCE ON HUMAN, PHYSICAL RESOURCES

A two-day conference on the "Creation, Maintenance and Use of Human and Physical Resources" was held recently in Denver, Colorado. Sponsored by the Social Science Education Consortium, Inc. (SSEC) and supported by the Course Content Improvement Program of the National Science Foundation, this conference attracted 125 social and natural scientists and science educators from throughout the nation.

Primary focus of the conference was the utilization of all environmental resources, both natural and man-made, and subsequent implications for education and curriculum development. Basing his remarks on his work on pollution abatement, **John Kinney** opened the conference with an optimistic view of man's ability to reach an ecologically sound symbiotic relationship between himself and his environment. University of Michigan sociology and psychology professor **Ronald Lippit** presented a series of propositions about how society could better use the pool of human resources through such means as volunteerism. **John Bremer**, director of the Institute for Open Education, used his experiences in open education in Great Britain and Philadelphia as the basis for his talk.

The final session was a case study of the reaction of several communities in Maine to the proposed development of oil refineries and an ocean seaport along the "down east" area of Maine. Several small group discussions were included in the conference format to allow participants to discuss special interests, such as implications for teacher education, curriculum development, international education, and values education.

Conference proceedings will be compiled, edited, and published as a book by Holt, Rinehart and Winston.

NSF Funds Summer Institutes in Environmental Studies

Eight teacher education programs dealing with Interdisciplinary Environmental Studies have been funded by the National Science Foundation under its program of summer institutes for secondary school teachers for 1972. A total of 222 teachers and twenty administrators will receive support in these institutes, four of which will be in the state of Wisconsin.

The programs, briefly annotated here, include:

BAYLOR UNIVERSITY, Waco, Texas, 7 weeks, June 26—August 11: **Introduction to Environmental Problems,** for teachers of biology and chemistry; Dr. Virgil Tweedie, Department of Chemistry, Director.

UNIVERSITY OF IOWA, Iowa City, 8 weeks, June 12—August 4: **Contemporary Problems of Society; Ecological Studies; Pollution Problems; Seminar in Interdisciplinary Environmental Studies,** for teachers of biology and social science; Dr. Robert Yager, Science Education Center, Director.

OHIO STATE UNIVERSITY, Columbus, 8 weeks, June 26—August 18: **Environmental Science,** for teachers of science; Dr. Victor J. Mayer, Faculty of Science Education, Director.

SAINT JOSEPH COLLEGE, West Hartford, Connecticut, 6 weeks, June 26—August 4: **Environmental Studies,** for local teachers of physical science, Sr. M. Clare Markham, Department of Chemistry, Director.

UNIVERSITY OF WISCONSIN-RIVER FALLS, 4 weeks, June 12—July 8: **Organic Chemistry; Pesticide Use and Residule Control,** for teachers of agriculture who are also teaching high school courses in science or mathematics; Dr. James C. Dollahon, Dean, College of Agriculture, Director. This program will be repeated for a second group of participants, July 10—August 5.

UNIVERSITY OF WISCONSIN-WHITEWATER, 8 weeks, June 12—August 4: **Interdisciplinary Approach to Community Environmental Quality Improvement,** for teachers of the physical and social sciences from Wisconsin and the neighboring states; Dr. Charles B. Varney, Department of Geography-Geology, Director.

UNIVERSITY OF WISCONSIN SYSTEM, at Clam Lake Field Station, 6 weeks, June 18—July 28: **Environmental Assessment,** for teachers of science. One week, July 26—August 2: **Program Evaluation and Implementation,** for administrators from schools of participants; Dr. Roy E. Heath, Board of Regents of University of Wisconsin System, Director.

In addition, a number of other NSF Summer Institutes will include environmental studies in their programs. Among them are:

BOWDOIN COLLEGE, Brunswick, Maine, 6 weeks, June 26—August 4: **The Chemical Study of Environmental Problems,** for teachers of chemistry who teach an advanced placement or second year course; Prof. David A. Wheatland, Department of Chemistry, Director.

UNIVERSITY OF CINCINNATI, Ohio, 6 weeks, July 10—August 18: **The Population Explosion, An Interdisciplinary Approach,** for teachers of social sciences, biology, and new experimental interdisciplinary courses; Dr. Carl A. Huether, Department of Biology, Director.

FRANKLIN AND MARSHALL COLLEGE, Lancaster, Pennsylvania, 8 weeks, June 28—August 22: **Hydrogeology, Water Resources and Environment,** for teachers of earth science; Dr. Marvin E. Kauffman, Department of Geology, Director.

KANSAS STATE TEACHERS COLLEGE, Emporia, 9 weeks, June 12—August 11: **Environmental Biology and Human Ecology,** for teachers of biology; Dr. Harold Durst, Department of Biology, Director.

KANSAS STATE UNIVERSITY, Manhattan, 8 weeks, June 25—August 18: **Fundamentals of Ecology and the Power Basis of Society; Power, Society, and the Environment,** for teachers of biology and physical science; Dr. Walter Meyer, Nuclear Engineering Department, Director.

UNIVERSITY OF MICHIGAN, DEARBORN CAMPUS, 8 weeks, June 19—August 11: **Environmental Science,** for teachers of the life sciences from the metropolitan Detroit area; Dr. Orin G. Gelderloos, Department of Experimental Biology, Director.

MOUNT MARTY COLLEGE, Yankton, South Dakota, 8 weeks, June 19—August 11: **Environmental Biology in Field and Laboratory,** for teachers of biology; Sr. Veronica Fasbender, Department of Biology, Director.

NORFOLK STATE COLLEGE, Virginia, 8 weeks, June 19—August 11: **Ecology, Man and His Environment,** for teachers of biology; Dr. Paul L. Brown, Department of Biology, Director.

NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY, Greensboro, 9 weeks, June 12—August 12: **Environmental Biology,** for teachers of biology; Dr. Artis P. Graves, Department of Biology, Director.

SETON HILL COLLEGE, Greensburg, Pennsylvania, 6 weeks, June 26—August 4: **Environmental Problems and Solutions,** for teachers of chemistry; Mrs. Barbara Raczkowski, Department of Chemistry, Director.

ST. CLOUD STATE COLLEGE, Minnesota, 6 weeks, July 3—August 11: **Environmental Biology,** for teachers of science; Dr. Harold Hopkins, Department of Biology, Director.

UNIVERSITY OF SOUTHERN MISSISSIPPI, Hattiesburg, 10 weeks, June 5—August 11: **Environmental Science,** for teachers of earth science and general science; Dr. Isador L. Sonnier, Department of Science Education, Director.

VASSAR COLLEGE, Poughkeepsie, New York, 6 weeks, July 10—August 18: **Environmental Geology,** for teachers of earth science and general science; Dr. John H. Johnsen, Department of Geology and Geography, Director.

WASHINGTON STATE UNIVERSITY, Pullman, 8 weeks, June 19—August 11: **Environmental Science,** for teachers of science; Prof. Harry H. Batey, Jr., Department of Chemistry, Director.

Four "short courses" dealing with environmental studies have also been funded under the NSF Summer Institute program. They include:

UNIVERSITY OF CALIFORNIA, BERKELEY, 3 weeks, programs, July 17—August 4 or August 7—August 25: **Environmental Studies,** for teachers and supervisors of science in the Berkeley area; Prof. Donald L. Dahlsten, Lawrence Hall of Science, Director.

SHORTER COLLEGE, Rome, Georgia, 3 weeks, June 12—June 30: **Natural Resource Use,** for teachers and supervisors of science, Dr. Philip Greear, Director.

UNIVERSITY OF TEXAS AT EL PASO, 3 weeks, July 17—August 4: **Environmental Quality,** primarily for El Paso teachers of science and social science; Dr. James L. Milson, Department of Curriculum and Instruction, Director.

VALDOSTA STATE COLLEGE, Georgia, 3 weeks, June 19—July 8: **Natural Resource Education,** for teachers of science and mathematics; Dr. Clyde E. Connell, Department of Biology, Director.

Prospective participants for the above and other NSF Summer Institute programs were required to complete and submit application materials to institute directors by March 1; announcement of selection of successful applicants was scheduled for March 20. Tuition and fees of participants are paid by the National Science Foundation; in addition, stipends are awarded.

Environmental Data Collected by Students on Oahu

Twenty-five Hawaiian science teachers in fifteen pilot schools on the island of Oahu have begun an island-wide environmental activity, according to an article in a recent issue of the **Foundational Approaches in Science Teaching (FAST) Newsletter.** They and their students are collecting data on wind direction, wind speed, and temperature from spots all over Oahu, following carefully-standardized instruction, and expect to have several thousand bits of information on punched computer cards on time and with sufficient precision to become a useful, valid part of a professional research on pollution.

The Task Force on Air Pollution at the University of Hawaii Environmental Center will incorporate the students' work as one factor of an Air Pollution Diffusion Model for the island. The model is projected for use in presentations before the State Legislature.

Punahou School is acting as coordinating center through which all data are being channeled, and is also documenting each phase of the activity on TV film which can later be built into a telecast report.

Among projected outcomes of the program are:

1. Use of information in Senate hearings planned by Dr. Anders Daniels of the Task Force on Air Pollution;
2. development of operational potential for future coordinated multiple-school learning activities;
3. dissemination to the public via TV film a report of the contribution students can make to cooperative research affecting the betterment of environmental planning;
4. development of student understanding of research procedures, including necessity of standardization of data, through participation in and contribution to bona fide research.

Foundational Approaches in Science Teaching is a project of the University of Hawaii Curriculum Research and Development Group at the University Laboratory School.

The Concept of Environment . . .

"It would appear that the study of the environment begins unofficially at birth and could continue throughout life. It is obvious that the environment can be a field for exploration from the time when a baby has not discovered that his toe belongs to **his** body, to the time when he discovers that the social thinking of his family or his nation is one of many kinds of clan thinking produced by differing cultures in differing environments." From:

Young Geographers by
Lucy Sprague Mitchell
(originally published in 1934)
Basic Books, 1963, p. 21

USOE Awards "Mini-Grant" to ERIC/SMEAC for Modules

ERIC/SMEAC has been awarded a "mini-grant" by the U.S. Office of Education to develop three sets of information dissemination modules which can be used by school staffs or community workshop leaders to assess the various types of environmental education programs that may be of use in building their own programs.

Module I will be composed of 35-millimeter slides illustrating environmental problems and concerns as well as existing school programs in various settings stressing possible types of educational programs which may be developed. Audio tapes, script, and a reader to support the visual program will be included.

Module II will consist of a collection of selected national, regional, and state publications, in addition to a guide indicating similarities and differences in the materials.

The third module will contain a selection of environmental education activities indexed by topic area and educational level.

The grant also allows for five regional workshops across the nation to explain and demonstrate use of the materials to state coordinators for environmental education. One set of the three modules will be provided to each state environmental education coordinator participating in the workshops.

The modules produced will be directed toward school program development on a K-12 basis, and will also serve as a resource base for community groups with educational programs for children in the same age range. Through this program, decision makers at various administrative and teaching levels will be able to develop greater awareness of alternative environmental education programs, materials, and activities. Some schools may decide to utilize existing materials contained in module II, while others may wish to produce their own programs by modifying materials and ideas from the modules.

Projections call for the completion and availability of the three modules from ERIC/SMEAC in March, 1973.

Smithsonian — Peace Corps Program Places Volunteers

The international environmental program undertaken jointly by the Peace Corps and the Smithsonian Institution has already placed volunteers in about 20 countries. Examples of projects are schistosomiasis research in Ghana, aquaculture in Brazil, national-park development and primate ecology in Columbia, ecologic surveys in Costa Rica, rodent ecology and marine biology in Tonga, air pollution studies in Thailand, and a wildlife survey in Iran. Those sent to countries requesting assistance are experts—often husband-and-wife teams.

Those interested should contact:

Robert K. Poole, Director
Environmental Programs
Peace Corps
Washington, D.C. 20525
OR
Richard L. Jackowski
Smithsonian Institution
Washington, D.C. 20560

ATTENTION!

ERICTAPE USERS

In response to the expressed needs of a number of users, LEASCO Systems has recently:

1) added a new data element providing positive identification of documents which are available from the ERIC Document Reproduction Service (EDRS)
2) revised EDRS prices on all records to date to conform to the current price schedule for both microfiche and hard copy.

Users have occasionally been inconvenienced when they have inadvertently ordered EDRS documents which are not available, due to copyright, legibility, etc. In order to minimize such occurrences LEASCO has taken two steps:

1. Each issue of **Research in Education** (RIE), beginning with January 1972, will contain at the back a list of documents **not** available from EDRS. Orders can be checked against this list prior to shipment to EDRS.
2. A fixed position on the magnetic tape record (Position 17) has had a special symbol (# = HEX7B) placed in it if the document is not available from EDRS. This position occurs at the end of the Sequence Code Field (Field ID HEX 0000), which contains the ERIC Accession Number. A document not available from EDRS will, therefore, have the following type of data in this field: ED123456#. An available document will lack the # symbol. Blanks or any other character in this position are not significant. All future updates will carry this indicator.

With the change in contractors for the EDRS, there was also a change in prices which applies to all microfiche and hard copy orders. However, these revised prices appear in the tape file only for documents announced in and subsequent to the May 1971 issue of RIE. The appearance of obsolete prices in current search results has created problems for both the users and EDRS. We have eliminated this problem by changing the EDRS price field (Field ID HEX 0025) on all records to date to conform to the current price schedule. The computation of the new price was based on pagination data contained in the record.

Completely revised cumulative master files incorporating both of these changes are available at standard prices*. Two tapes are required for the full file at 1600 BPI and four are required at 800 BPI. They may be ordered from:

ERICTAPES
LEASCO Systems and Research Corporation
4833 Rugby Avenue, Suite 303
Bethesda, Maryland 20014
(301) 656-9723

*OPTION 1 Files on LEASCO-supplied tapes @ $80.00 per tape. (LEASCO will provide files on high-quality, unused tapes with reduplication guarantee) OPTION 2 Files on customer furnished, certified unused tapes @ $50.00 per tape. (LEASCO will duplicate files on customer supplied, certified previously unused tapes with limited reduplication guarantee.)

NWF Publishes E.E. Units

National Wildlife Federation is in the process of publishing a group of 36 environmental units developed by the Environmental Science Center of the Minnesota Environmental Sciences Foundation, Inc. The first dozen units became available in January; additional units are currently being released.

The units are designed to be part of existing curricula, to complement what students are already experiencing. Units are complete in themselves, and contain descriptions of objectives and methods as well as lists of simple materials. They are experienced-oriented, and have undergone field trials with classroom teachers, followed by evaluation, revision, and adaptation.

Among the titles, with recommended grade levels, are:
Plants in the Classroom (3-6);
Vacant Lot Studies (5-9);
Differences in Living Things (4-8);
Shadows (1-8);
Wind (3-6);
Snow and Ice (1-6);
Man's Habitat—The City (4-9);
Fish and Water Temperature (4-9);
Oaks, Acorns, Climate and Squirrels (1-6);
Nature Hunt (Special Education, K-1);
Sampling Button Populations (3-9);
The Rise and Fall of a Yeast Community (6-9);
Genetic Variation (4-9);
Soil (2-9);
Tile Patterns and Graphs (1-2);
Plant Puzzles (1-6);
Brine Shrimp and Their Habitat (1-5);
Nature's Part in Art (3-6);
Change in a Small Ecosystem (5-9);
Micro-Communities (3-9);
Plants Outside the Classroom (3-9);
Contour Mapping (4-9);
Stream Profiles (4-9)
Color and Change (K-2);
Water Quality (5-9);
Outdoor Fun for Students (1-12).

Prices on the first dozen units were listed at $1.00 or $1.50 each. A free brochure describing activities in the individual units is available from:

The National Wildlife Federation
Educational Servicing
1412—16th Street, N.W.
Washington, D.C. 20036

"Ekistics" Journal Published

Ekistics, the science of human settlements, has its own international journal of the same name, which publishes reviews on the problems and science of human settlements. "Ekistics," says C. A. Doxiadis, "demonstrates the existence of an overall science of human settlements conditioned by man and influenced by economics, social, political, administrative and technical sciences and the disciplines related to art." The elements of the science are listed as Nature, Man, Society, Shell, Networks, and Synthesis. Subscriptions to **Ekistics** are available in the United States for $35.00 a year from:

Oxford University Press
200 Madison Avenue
New York, New York 10016

National Environmental Education Advisory Council Appointed, Organized

The newly appointed National Advisory Council on Environmental Education held its second full meeting in February. The Council, chaired by **Mrs. Ella Mae Turner** of Los Angeles, and appointed by the Secretary of HEW, was established by the Environmental Education Act, Public Law 91-516.

The congress decreed that the Council:

1. shall advise the Commissioner of Education and the Office of Environmental Education concerning the administration of, preparation of, general regulations for, and operation of programs assisted under this section;
2. make recommendations to the office with respect to the allocation of funds and the criteria to be used in approving applications, which criteria shall insure an appropriate geographical distribution of approved programs and projects;
3. develop criteria for the review of applications and their disposition; and
4. evaluate programs and projects assisted under this section and disseminate the results thereof.

In addition, the legislation requires that members be appointed from both the public and private sector, and advocates persons from diverse backgrounds and geographical locations. It specifically requires that the Council include not less than three ecologists and three students.

Members of the Council presently include:

Representative, Victor Ashe, Knoxville, Tennessee

Barry Commoner, Chairman of the Botany Department, Washington University, St. Louis

Lloyd G. Humphreys, Chairman of the Psychology Department, University of Illinois

Peter S. Hunt, Consultant and Developer of Environmental Sciences, Sarah Lawrence College

Alfred J. Kreft, National Director of the Izaak Walton League

Miss Linda Lee, Attorney, Former General Counsel to the Council on Environmental Quality, National Parks and Recreation, and the Inter-American Social Development Fund

Michael Millenson, Student, Washington University, St. Louis, and Volunteer staff member of USOE (EE)

Richard Myshak, Executive Director, Minnesota Environmental Sciences

Mrs. Julia Perry, Civic Leader, Tucson

William Ruckelshaus, Administrator for the Environmental Protection Agency

Rudolph J. H. Schafer, Consultant on Environmental Education to the California State Department of Education

Robert O. Simmons Jr., Student, Temple University

Mrs. Phyllis Singer, Iowa Newspaperwoman

Frank Torres, Associate Director for Oceanographic Research, San Juan, Puerto Rico

Mrs. Ella Mae Turner, Los Angeles, an English and Music teacher with extensive experience in urban and minority community affairs who has served as minority appointee for the State of California's governor's office, on advisory committees for many such projects

Miss Cynthia Walburn, Ecology Student, University of California

Edward Weidner, Chancellor, University of Wisconsin at Green Bay

Harold T. White, President, Northeast Mississippi Junior College

Miss R. Joyce Whitley, Cleveland, a member of the National Board of the American Institute of Planners

The final two nominations to the council were not cleared for announcement at press time.

One of the most demanding responsibilities of the Council is in the development of criteria for review of proposals. Members of the Council do not participate directly or indirectly in the review of the individual proposals submitted to the Office of Education for funding, but do evaluate the actual processes of review and establish the criteria on which proposals will be considered. As certain programs become established which fill presently-existing voids in public awareness of the environment, the Council will consider redirection of the flow of resources in order to realize its stated goal of improving the quality of the nation's environment and restoring the ecological balance. It is contemplated that both formal and informal educational channels will prove to be necessary and complementary in achieving environmental quality. This responsibility will become more complex as the problems of the environment become less glaring and more subtle.

The provisions of the Environmental Education Act require that programs funded by the Office of Environmental Education be demonstrations, multidisciplinary, with a high degree of community involvement. Consequently, an intimate knowledge of both the need for a program and the contributions of a funded program become the responsibility of both the Office of Environmental Education and the Advisory Council. This dual responsibility also requires that the Council have a full working knowledge of the Office of Environmental Education, including such details as staff roles and budgetary matters within the domain of office administration.

As a result of PL 91-516, approximately 2000 proposals were submitted to the Office for funding in 1971, and approximately 3000 were expected for fiscal year 1972, the deadline being January 28th. In light of the delayed appointment of the Council (December 1, 1971) the policy positions of the Council on those matters requiring its attention will not be reflected until FY 1973.

Finally, it is the legislated role of the Council to encourage the full cooperation of those other programs in HEW, federal agencies, and those institutions and organizations on the state and local level together with the Office of Environmental Education in developing "environmental literacy" among the people of the United States.

Questions concerning the Council may be addressed to the Chairman, Council members, or **Mrs. Joan M. Nicholson**, currently serving as administrator for the Council, through the Office of Environmental Education, Office of Education, 400 Maryland Avenue, Washington, D.C. 20202.

How Many Toothpicks?

A typical American will have consumed the equivalent of 150 head of cattle, 2,400 chickens and 26 acres of grain by the time he reaches the age of 70, an American Medical Association official has stated.

And, said **Dr. Philip L. White**, the average American also will have eaten 225 lambs, 310 hogs, and 50 acres of fruits and vegetables.

Dr. White, secretary of the AMA's Council on Foods and Nutrition, added that this quantity of groceries would be washed down with 7,000 gallons of water, plus—in the case of martini drinkers—510 gallons of gin and 1½ quarts of vermouth.

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SMEAC

Dr. Robert W. Howe
Director

Dr. Robert E. Roth
Associate Director
Environmental Education

Dr. John F. Disinger
Faculty Research Associate
Environmental Education

Dr. Stanley L. Helgeson
Associate Director
Science Education

Dr. Jon L. Higgins
Associate Director
Mathematics Education

**ERIC Information Analysis Center
for Science, Mathematics, and
Environmental Education
1460 West Lane Avenue
Columbus, Ohio 43210**

ADDRESS CORRECTION REQUESTED

1240—RF-2228
Environmental Education—Volume 2, Number 3, 1971-72

SMEAC

ERIC

SEMINAR SEEKS TO EVALUATE ENVIRONMENTAL PROBLEMS

Persons planning environmental education programs are faced by conflicting sets of claims concerning the "most pressing environmental problems" in need of solution. They need to evaluate claims made by "experts" in different fields who strongly advocate their own positions. For example, there are some that insist that the prime need is to limit population growth; some economists feel that a reform of the economics of production is the most urgent need, and a reduced population growth will aggravate the problems of introducing the reformed economic policies. How can the educator plan his courses if he is uncertain of the desirable long-term ends of his programs? If he is successful in inculcating attitudes advocated by one group of experts, might he inadvertently cause other problems not foreseen by the consultants whom he employs?

As a first step in a study which will compare the positions of persons influential in a number of different fields to identify the areas where there are conflicting educational implications, ERIC/SMEAC is sponsoring a seminar in Ohio from May 16 to 18 where consultants from different specialties will be identifying the environmental problems that they see as most in need of solution. Consultants include:

Saul Levine, Assistant Director, Division of Environmental Affairs, U.S. Atomic Energy Commission;

Wesley Eckenfelder, Vanderbilt University, Department of Environmental and Water Resources Engineering;

Laurence Gerckens, The Ohio State University, School of Architecture;

Peter Junger, Case Western Reserve University, School of Law;

Richard Tybout, The Ohio State University, Department of Economics;

Edmund Gordon, Columbia University, Division of Health Services, Sciences and Education;

John Ross, Associate Director, Institute for Environmental Studies, University of Wisconsin.

Other participants include a geographer, a geologist, and an ecologist. The educator roles will be filled by staff of ERIC/SMEAC: **Robert Howe, Robert Roth**, and **Arthur Lucas**.

Each has prepared a preliminary outline of his perceptions of long- and short-term environmental problems, suggested solutions to these problems, and is making some comments on the educational implications of his solutions. At the meeting the previously circulated papers will be critically discussed, and inconsistencies between the recommendations of the specialists identified.

After the conference the position papers will be revised, and made available to the public. Ordering information will be announced in this newsletter. A summary statement of the major conclusions will also be published in a later issue.

SE 017 938

Thorne Institute Sets Summer Seminar

Thorne Ecological Institute has announced plans for its sixth national seminar on Environmental Arts and Sciences (SEAS), to be held June 30—July 5, 1972, at Aspen, Colorado. With an objective of expanding communications between environmentalists and decision-makers in business, industry, labor, government, education, the professions and the arts, the Institute provides a forum where some of the nation's most influential people may become better acquainted with the science of ecology.

Dr. Beatrice E. Willard, president of TEI, said that this year's SEAS theme would be "Ecological Insights in Decision-Making." She explained that the Seminar would "provide facts and ideas toward the blending of man's decisions, his actions, and his values with his environment —his life-support system. We try to impress our participants," she continued, "with the necessity of considering environmental factors in addition to purely economic ones, whenever they are faced with policy decisions."

In order to implement the theme, a staff of ecologists, designers, social scientists, decision-makers, and environmental attorneys will lead participants in field trips throughout the Aspen area. These experts will direct discussions of specific environmental case-studies, so that participants can take part in first-hand applications of ecological principles to the landscape. "SEAS is unique," Dr. Willard said, "in bringing those whose decisions greatly affect the environment face to face with real-life ecological problems and situations."

Case-studies for SEAS-72 will be "A New Town in the Roaring Fork Valley" and "Oil Shale Development in the Piceance Creek Basin."

Past SEAS participants have included representatives from such diverse interests as Consolidated Edison Company of New York, American Metal Climax, Inc., United Auto Workers, American Petroleum Institute, Sierra Club, Public Television, Denver Public Schools, **The Christian Science Monitor, Sports Illustrated,** U.S. Army Corps of Engineers, U.S. Forest Service, and the U.S. Congress. Scholarships are taken from a special fund for selected representatives from the communications professions, students, minority leaders, clergymen, and public school teachers, so that all points of view can be heard at the gathering.

Those wishing further information should contact:

Thorne Ecological Institute
1229 University Avenue
Boulder, Colorado 80302
Phone: (303) 443-4480

"Times" Population Supplement Available

Single copies of a special 28-page "Population" supplement of **The New York Times** of Sunday, April 30, 1972 are available free, along with a guide for their use, to teachers requesting them. Sponsorship is by the Population Crisis Committee, to encourage wider understanding of population issues and commitment to action.

Contents include:

A synopsis of the final report and recommendations of the U.S. Commission on Population Growth and the American Future;

Statements from leading national and international figures;

Photographs and charts accompanying the text;

A bibliography of readily-available reference materials.

Up to ten copies cost 15 cents each, up to 100 copies 10 cents each, and over 100 copies, 8 cents each. Checks should be made payable to Population Supplement, and mailed to:

Population Supplement
P.O. Box 6585
Washington, D.C. 20009

Southern Illinois Plans Workshops

Summer workshops in Outdoor Education and Conservation Education have been announced by Southern Illinois University, utilizing its outdoor laboratory at Little Grassy Lake. Principal goal of the workshops is to assist leaders in the implementation of conservation and outdoor education programs in schools, parks, social agencies, and nature centers.

The Outdoor Education Workshop is scheduled for June 12-23, and the Conservation Education Workshop for June 26—July 7.

Deadline for pre-registration is June 1. Those interested should contact:

Dr. Paul F. Nowak
Conservation and Outdoor Education
Southern Illinois University
Carbondale, Illinois 62901

Environmental Filmstrip Set Prepared by Fernwood

Environmental Awareness is the title of a series of five sound, color filmstrips prepared by **Robert Joslin,** Division of Environmental Education, Fernwood, Inc. of Niles, Michigan. Photos are by **Larry West.**

The strips, with records or cassettes, include: **Patterns in Nature, Colors in Nature, Textures in Nature, Awareness in the Forest,** and **Awareness in the City.** Each has an accompanying teachers' guide. The complete set is available with records for $59.50 or cassette for $69.50 from:

Centron Educational Films
1621 West Ninth Street
Lawrence, Kansas 66044

Photo-Documentation Program Initiated by EPA

A new Federal program for documenting the environmental movement in the U.S. was announced by EPA Administrator **William D. Ruckelshaus** in November. Called **Project Documerica,** the program uses the talents of photographers assigned by EPA to document national progress toward solutions of environmental problems.

"We are working toward a new environmental ethic in this decade which will bring profound change in how we live, and in how we provide for future generations," Ruckelshaus said. "It is important that we document that change so future generations will understand our successes and our failures. Project Documerica will record what we do as individuals and as institutions."

Arthur Rothstein, an original member of the group that developed the Farm Security Administration's collection of documentary still photographs of the 1930s now in the Library of Congress, will serve as a consultant to EPA. He will assist in selection of the photographers and direct their assignments. The project will be managed by EPA's Office of Public Affairs. The project will concentrate on still photography initially, but include motion picture techniques later. Main objective is a collection of color photographs which will be freely available on loan to the media and public.

EPA also announced the initiation of an EPA fine arts program, under which 15 artists will be commissioned each year to create paintings on any environmental themes associated with EPA's mission. **Dr. Lester Cooke,** curator of painting, National Gallery of Art, will advise EPA on artists to be invited to participate.

Environmental Education Should Begin in Kindergarten

Environmental education should be in the school curriculum from kindergarten on up. It should also be introduced in many ways, and not limited to science alone, according to **Dr. Jean Kriebs** of the College of Education at the University of Illinois, Circle Campus in Chicago, in a recent article in Rodale's **Environment Action Bulletin.** Dr. Kriebs showed how this can be done in a Conservation Workshop she directed for 37 teachers sponsored by the Wissahickon Valley Watershed Association, Fort Washington, Pennsylvania.

"The group was very heterogeneous," Dr. Kriebs explained. "It included a music teacher, a biology teacher, a vocational education teacher, and other teachers from kindergarten through the twelfth grade. Among other things, each individual developed a project for use in his own class. The music teacher wrote songs about the environment. One of the kindergarten teachers devised conservation-oriented games for children. The participants planned to include more environmental education in their teaching. Some of them located places which they intend to develop as natural areas near their schools.

"Environmental education," Dr. Kriebs emphasized, "should be incorporated as an integral part of the overall classroom curriculum. It cannot be taught effectively as an isolated unit. Students must be continually aware of the environment. They must also put into practice what they learn."

NEA ANNOUNCES TWO FILMSTRIPS

Two color, sound filmstrips designed for use in environmental education programs have been announced by the National Education Association.

Man and His Environment: A New Approach to Environmental Education is designed to orient teachers and the public to an innovative approach to environmental education for all school subjects and levels. The approach is based on five strands and environmental study areas first developed by the National Park Service, in cooperation with the Association of Classroom Teachers and Project Man's Environment, American Association for Health, Physical Education, and Recreation. The strands include: Variety and Similarities, Patterns, Interaction and Interdependence, Continuity and Change, and Evolution and Adaptation. They are utilized as a means of drawing the environment into an integrated whole for use at any site and application to any subject where environmental relationships can be observed, analyzed, and compared. This filmstrip is accompanied by a booklet, **Man and His Environment: An Introduction to Using Environmental Study Areas.**

The filmstrip is listed as stock number 388-11900, which also includes one copy of the booklet and a recorded narration, for $17.

Environmental Crisis: What the Individual Can Do (Stock #388-11902) also includes with the filmstrip a recorded narration and 30 copies of a companion leaflet of the same title. This filmstrip is designed for use with upper elementary to college level students, as well as the general public. Areas explored include community action groups, returnable containers, low-phosphate-content detergents, mass transit, lead-free gasoline, a possible return to the simpler life, and a greater respect for nature. This filmstrip was produced with cooperation of ACT, ASCD, FTA, NCSS, and NSTA. The set is listed for $15.

Interested persons may purchase either or both filmstrips from NEA. The booklet **Man and His Environment** (Stock #246-25118) may be purchased separately for $1.75, while a package of 30 **Environmental Crisis** leaflets may be purchased for $1.50. A ten per cent discount is allowed on quantity orders of 2-9 copies of one title; there is a twenty per cent discount for ten or more copies of the same title. Orders may be placed with:

National Education Association
Publications—Sales Section 138
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

Environmental Doctorate Offered

Graduate students at UCLA have embarked on a new five-year doctoral program in Environmental Science and Engineering, supported by a National Science Foundation grant.

Twenty-two students with degrees in engineering or the natural sciences entered the program in autumn 1971. During the program, each student will first earn a master's degree in a specific science or engineering field. The following year and a half, the student will study a broad range of science, technology, and social science subjects and will be a member of an on-campus multidisciplinary team working toward solution of an environmental problem.

A key feature of the program is one-and-a-half to two-year field-training experience, in which each student will work on environmental problems with government agencies, industrial or utility firms, or conservation organizations.

ES Prepares Revised Editions of Packets 1 and 2

Environmental Studies Project of Boulder, Colorado, has reported that the first printing of **ES Packets 1 and 2** is sold out, but that revised editions of the pair are available at a total cost of ten dollars. Two thousand sets of the first printing are currently in the hands of pre-service, in-service, elementary, secondary, and college teachers, state departments of education, and educational administrators. Feedback from usage of the first printing has been utilized in determining revisions.

The second Environmental Studies Writing Conference, held at Thorne Ecological Foundation's A2Z Ranch near Cody, Wyoming, in August 1971 was instrumental in using teacher feedback in revising the packets. Among participants at the conference were **Bob Tannen**, a consultant in invention and creativity, eight Environmental Studies staff members, and eight teacher-writers, including:

Sue Frommer, Los Angeles
Jim Gladson, Los Angeles
Bill Kagami, Chicago
Len Keller, Chicago
Susie Oliphant, Washington, D.C.
Lucy Powell, Littleton, Colorado
Judy Scott, New York City
Lloyd Sherman, New York City

Environmental Studies project is a part of the American Geological Institutes Earth Science Educational Program, which also includes the Earth Science Teacher Preparation Project and the Earth Science Curriculum Project, all funded by the National Science Foundation. ES and ESTPP co-publish a quarterly newsletter, **Sensorsheet**, subscription to which is free on request from:

Earth Science Educational Program
Box 1559
Boulder, Colorado 80302

AAAS ISSUES UPDATED ENVIRONMENTAL BIBLIOGRAPHY

Publication of what is believed to be the most comprehensive reference work to date on books, journals, articles, and other literature dealing with the environment has been announced by the Commission on Science Education of the American Association for the Advancement of Science. The 96-page compendium is entitled **Science For Society—A Bibliography.** Almost 4000 references, many annotated, are included. All aspects of the interrelations of man, society, environment, science, and technology are covered; titles are classified and indexed in major and minor categories to help the user find materials on specific subjects.

The bibliography is a second, expanded edition of a publication bearing the same title and issued in 1970. **Dr. John A. Moore**, Professor of Biology, University of California, Riverside, and Chairman of the Commission, has again served as editor of the new edition.

Support furnished by the National Science Foundation, E. I. du Pont de Nemours and Company, Xerox Corporation, and the AAAS has made it possible to offer the bibliography at the price of $1.00 per copy, or 75c each for ten or more copies. Orders, accompanied by payment, should be addressed to the Education Department, AAAS, 1515 Massachusetts Avenue, N.W., Washington, D.C. 20015.

Publications of Interest . . .

A **Directory of Degree Programs Related to Conservation, Ecology, Environmental Education, Environmental Science, Outdoor Education and Natural Resources** has been compiled by Russel E. Bachert, Jr. under the sponsorship of the Conservation Education Association. Data were gathered through a survey endorsed by the Committee on Professional Preparation of the Council on Outdoor Education and the Outdoor Education Project of the American Association for Health, Physical Education and Recreation.

The 32-page directory is arranged alphabetically by state; each college and university entry includes the name and address of the person to contact for further information, programs available, and a descriptive annotation.

The publication is available for $1.25 from:

The Interstate Printers and Publishers, Inc.
19-27 North Jackson Street
Danville, Illinois 61832

High school and college students interested in environmental careers may find useful Odom Fanning's **Opportunities in Environmental Careers**, available from:

Vocational Guidance Manuals
Universal Publishing and Distributing Corp.
235 East 45th Street
New York, New York 10017

Pollution: A Selected Bibliography of U.S. Government Publications on Air, Water, and Land Pollution, 1965-1970, by Louis Kiraldi and Janet Burk, is available for $.300 from:

Institute of Public Affairs
Western Michigan University
Kalamazoo, Michigan 49001

Environmental Education in the Public Schools, a nationwide survey of public school programs in environmental, conservation, and outdoor education, has been prepared for the National Park Service by the National Education Association Research Division, funded through the American Association for Health, Physical Education, and Recreation. The 72-page report (Stock #435-25450) is available for $1.50 from:

National Education Association
Publications—Sales Section 138
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

Ecology Today, a monthly magazine, focuses on articles, pictures, and teaching aids for environmental education. Subscription rate is $6.00 a year, from:

Ecological Dimension, Inc.
P.O. Box 180
West Mystic, Connecticut 06388

A brief pocket guide to programs, resources and materials on environmental education, **Help for Environmental Programs,** is available from:

U.S. Forest Service NA-S&PF
Upper Darby, Pennsylvania 19082

A source of current regulatory information, dealing with the goals and accomplishments of the Environmental Protection Agency, **Toward a New Environmental Ethic** is a 26-page, full-color pamphlet, (Stock #5500-0031) available for 60 cents from:

U.S. Government Printing Office
Washington, D.C. 20402

The American Freedom from Hunger Foundation has developed a packet of reading materials to help students begin to understand the issues involved in population and development. The packet is entitled **Population and Development,** and is available from:

American Freedom from Hunger Foundation
1717 "H" Street, N.W.
Washington, D.C. 20005

Places for Environmental Education, Educational Facilities Laboratories, presents a consensus of thought from 26 leading environmental educators gathered at a conference in July 1971; single copies are available free from:

EFL
477 Madison Avenue
New York, New York 10022

U.S. Office of Environmental Education has prepared **Environmental Education: Education that Cannot Wait,** a 40-page overview of commitment to environmental education as a means of maintaining environmental quality. It is available as Stock #1780-0809, for 30 cents, from:

Superintendent of Documents
Washington, D.C. 20402

A twelve-page brochure describing the activities of USOE (EE), **The New Environmental Education Program of the U.S. Office of Education,** DHEW Publication No. (OE) 72-41, is available from:

Office of Environmental Education
U.S. Office of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

In 1957, Chairman Mao Tse-tung of the People's Republic of China advocated a stable Chinese population—now called zero population growth. In 1964 Premier Chou En-lai set China a less ambitious but more realizable short-term goal: to reduce its rates of population growth—probably about 2 percent today—to 1 percent a year before the end of this century.

China's progress toward this goal, her methods of birth control and family planning, are discussed in a 34-page publication, **Population and Family Planning in the People's Republic of China.**

Single copies may be obtained free upon request by writing to:

The Victor-Bostrom Fund Committee and
The Population Crisis Committee
1730 K Street, N.W.
Washington, D.C. 20006

The Sex Information and Education Council of the United States (SIECUS) has recently published two new study guides: **Concerns of Parents about Sex Education** and **Teenage Pregnancy: Prevention and Treatment.**

The publications are available for 50 cents each. Reduced rates are available for bulk purchases. Orders under $5.00 must be prepaid.

Those interested should order from:

SIECUS
1855 Broadway
New York, New York 10023

ERIC/SMEAC, EPA, USOE(EE) Cooperate on National Assessment

A National Assessment of environmental concepts and attitudes related to the "Quality of Life" is being conducted by ERIC/SMEAC with the cooperation of the EPA and USOE(EE). This effort will provide:

1. a national sampling of knowledge and attitudes related to the environment and environmental quality;
2. information regarding knowledge and attitudes of the sample and subsample;
3. analyses of the interrelationships of knowledge and attitudes;
4. specific information for over 2,000 schools regarding knowledge and attitudes possessed by a sample of their population;
5. instruments and items which will have extensive norming data and which can be used by schools and communities for assessment purposes; and
6. a national focus on environmental education which would begin this summer and which will continue for at least three years.

The major objectives of this proposal are:

1. to develop three multiple-choice instruments to determine; (a) knowledge about the environment and environmental problems; (b) attitudes regarding the environment and environmental problems; and (c) perceptions regarding local environmental problems;
2. to obtain and to analyze information regarding secondary school students' (grades 10 and 12) attitudes toward the environment and knowledge about the environment;
3. to make this information and analyses available for use by program planners and participants in symposia to be held in most of the 50 states of the United States in the fall of 1972; and
4. to make the analyses of the information obtained and the instruments used available to school personnel, community leaders, students, government officials, and other interested persons through feedback information to over 2,000 secondary schools involved in the study, reports to be issued by the project staff and commissions, and reports in the ERIC system to be made available through the ERIC Document Reproduction Service.

An analysis of existing environmental conditions indicates that our educational systems, both formal and informal, have not produced citizens with desirable knowledge and/or attitudes regarding the environment and man's interaction with it. It appears that many people have attitudes and values which are antithetical to long-range improvement of the environment.

To attack this broad spectrum of needs relating to environmental education, a coordinated three-phase program is planned, related to improving the quality of man's living and based upon the national assessment of environmental conceptions and attitudes, (Phase I). Phase II is planned for the fall of 1972 when a number of symposia will be held focusing on the topic of "The Environment and the Quality of Man's Living." Phase III will follow the symposia and will utilize both the data obtained in Phase I and the presentations, discussions, and recommendations from Phase II. Activities in Phase III will involve the development of instructional materials, teacher education materials, and mass media presentations at the local, state, and national levels.

The National Assessment is being coordinated by the ERIC/SMEAC Staff, including **Dr. Robert Howe, Dr. Robert Roth,** and **Dr. John Disinger,** and two universities, University of Maryland and The Ohio State University. A future **News Letter** will announce other persons and groups involved.

NCCDE Announces Record, Publications

The National Coordinating Council on Drug Education has announced the availability of Bill Cosby's new LP, **Bill Cosby Talks to Kids About Drugs,** at reduced rates for bulk orders.

The album, distributed by Universal Studios, is available from record shops at $4.98. Orders placed through the Council, however, carry the following rates: 1-5 albums, $4.00 each; 6-24 albums, $3.00 each; 25 or more albums, $2.00 each.

Directed to children from 4-12 years of age, the album can also be appreciated by adults. It is designed to both entertain and to create an atmosphere for discussion in the home, classroom, or recreation areas.

NCCDE indicates that some organizations are purchasing the record at the special rates, then selling it at its retail price to raise funds for community action drug projects. Persons interested in such a program should contact Susan Kaiser, Executive Assistant for NCCDE.

NCCDE also has available the following publications related to drug education:

Common Sense Lives Here, a 96-page guide to community drug abuse organization, $3.00;

Drug Abuse Films, 2nd Edition, an evaluative report on more than 110 drug abuse films and audiovisuals, including information on each film's rental, purchase, scientific accuracy and communication impact, $3.00;

Drug Education Bibliography, an extensive bibliography with each publication categorized according to subject, $5.00;

Drug Education Directory, a compilation of information about NCCDE's 124 members, regarding their publications, films, services, etc., $5.00;

Drug Education Report, a monthly newsletter on the latest developments in drug abuse education, treatment and enforcement, including reviews and recommendations on materials and programs, $18.00;

Grassroots, a comprehensive drug abuse information service offering monthly supplements for current information on twenty categories, $95.00;

Marijuana and Health, a Report to Congress, January 31, 1971, the introduction and summary of the report from the Secretary of Health, Education and Welfare, $0.25.

NCCDE is a private nonprofit organization whose members include the American Bar Association, AMA, Boy Scouts of America, Lions International, NAACP, National Association of Manufacturers, National Association for Mental Health, National Association of Secondary School Principals, National PTA, and the National Council of Churches.

Persons wishing to order records or publications should write:

National Coordinating Council on Drug Education
Suite 212
1211 Connecticut Avenue, N.W.
Washington, D.C. 20036

NCCDE requests prepayment for orders under $10.00.

SMEAC

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Director

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Associate Director
Science Education

Dr. Jon L. Higgins
Associate Director
Mathematics Education

Dr. F. Joe Crosswhite
Research Associate
Mathematics Education

Dr. Patricia E. Blosser
Research Associate
Science Education

Dr. Robert E. Roth
Associate Director
Environmental Education

Dr. John F. Disinger
Research Associate
Environmental Education

**ERIC Information Analysis Center
for Science, Mathematics, and
Environmental Education
1460 West Lane Avenue
Columbus, Ohio 43210**

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Environmental Education—Volume 2, Number 4, 1971-72

SMEAC

/ERIC

National Environmental Assessment Underway

Sixty students in each of 2,000 schools across the United States will participate this Fall in a national assessment of student understandings of concepts related to, and attitudes toward, the environment. The study is being conducted by **A. Cordell Perkes**, The Ohio State University, and **Arthur E. Rondeau**, University of Maryland, in conjunction with ERIC/SMEAC.

Purpose of the study is to determine baseline data concerning conceptual understandings and attitudes toward the environment, as well as relationships existing between understandings and values as they exist among students. Projections include follow-up studies at later dates, as well as publication of results for potential use of those educators designing environmental programs.

Schools participating were selected by stratified random sampling procedures, taking into account urban, suburban, and rural environments. Each state is significantly represented in the sample. Students from grades 10 and 12 are being selected randomly, 30 per grade per school.

Results of the study will be summarized in a future issue of this **Newsletter**; availability of the entire study will be announced upon completion.

Population Programs Slated

A number of courses and workshops for teachers dealing with population problems are scheduled for the coming months, among them are:

Two workshops, "Quality of Life: Home, School, Community," June 5-16, at Washburn University, Topeka, and Kansas State College, Fort Hayes; contact **Evalyn Gendel**, Division of Maternal and Child Health, Kansas State Department of Health, Topeka, Kansas 66612.

Two courses, a summer institute in Social Demography and Population Policy and a summer workshop for Curriculum Development in Demography, for college teachers, June 26 - August 4, sponsored by the International Population Program, Cornell University, directed by **Parker Marden**.

Three courses, Population Education and Education in Human Sexuality and Family Planning, Elements of Population Planning, and Environmental Education, are proposed for the University of Michigan summer schedule, July 1 - August 26; contact **Eugene Weiss**, Department of Population Planning, University of Michigan, Ann Arbor, Michigan 48104.

EPA OFFICE, ERIC/SMEAC BEGIN DIRECTORY PROJECT

The Office of Manpower Development, Office of Air Programs, Environmental Protection Agency has initiated a project with ERIC/SMEAC to develop an annotated directory of instructional materials and resources to be utilized in the training of air pollution control personnel. The SMEAC staff is identifying and preparing resumes of those materials which may serve air pollution control manpower development needs as defined by the Office of Air Programs. Projected completion date is September 30, 1972.

A MODERN DILEMMA?

The trend of the times is toward an effort to repair past mistakes relative to natural resources. The President of the United States is deeply interested in this matter and has appointed committees of eminent men to coordinate the efforts being made. Every state has shown considerable interest. The states may well be interested and alarmed, as are thoughtful individuals. A steady course of waste has brought us face to face with the facts. To continue is to meet disaster.

Our forests—one of the greatest sources of wealth the nation has had—are almost gone. Many states now have Forestry Commissions working to repair mistakes and replace the vanishing timber.

Much of our soil is impoverished. State and national governments are trying to bring back fertility and educate the farm people so that their lands may increase in productive power.

Game is nearly gone, and our waters are almost barren of fish. State and federal authorities are exerting strong efforts to preserve the remaining supply and bring about an increase.

Never in the history of this country has the farmer had to contend with such armies of predatory insects which destroy crops. This alarming insect increase is due to the unnecessary slaughter of birds, which has interfered with nature's balance.

Our people have been wasteful because they have not been taught otherwise. After decades of appeal and argument, the grown-ups still do not respond. If the younger generation can be reached and interested, there will be a change for the better. They will appreciate the vital necessity of conservation.

FROM: **Elements of Conservation,** by Garrard Harris,
Richmond, Virginia: Johnson Publishing
Company, 1924.

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NSF ANNOUNCES IN-SERVICE INSTITUTES IN ENVIRONMENTAL EDUCATION

Environmental education topics provide the emphases for 31 different teacher education programs funded by the National Science Foundation under its in-service institute program for the 1972-73 school year.

Generally, teachers participating in these institutes do so in late afternoons, evenings, or on weekends while their own schools are in session. Grants normally cover tuition and fees for participants, along with book and travel allowances, but no other stipends. Programs are annotated briefly below; those interested in participating should contact the individual institution's program director for information concerning registration procedures, deadlines, etc.

Among the programs are:

ADELPHI University, Garden City, Long Island, NY 11530; **Environmental Awareness.** Dr. Leslie Sirkin, Department of Earth Sciences.

University of ALASKA, Anchorage 99504; **Environmental Science Curriculum Study.** Dr. Roland F. Stickney, Department of Education.

BEMIDJI State College, Bemidji MN 56601; **Solution to Pollution, Medical Ecology.** Dr. Gerald J. Smith, Department of Mathematics.

BOSTON College, Chestnut Hill MA 02167; **Environmental Science.** Prof. George T. Ladd, Department of Geology and Geophysics.

California State College, FULLERTON, 92631; **Human Ecology.** Dr. George C. Turner, Department of Science and Mathematics Education.

THE CITY COLLEGE, New York 10031; **Environmental Science.** Dr. Chester B. Kremer, Department of Chemistry.

COLORADO SCHOOL OF MINES, Golden 80401; **Introduction to Environmental Sciences.** Dr. Jerrold J. Burnett, Department of Physics.

DARTMOUTH College, Hanover NH 03755; **Exploring the Local Biological World.** Dr. William W. Ballard, Department of Biological Sciences.

EDINBORO, Pa., State College, 16412; **Environmental Earth Science.** Dr. Michael C. Schneider, Department of Earth Sciences.

FORT WRIGHT College, Spokane WA 99204; **Chemical Ecology**; Sr. Ione Gautereaux, Department of Science.

GANNON College, Erie PA 16501; **Environmental Science.** Prof. Stanley J. Zagorski, Department of Biology.

KANSAS STATE TEACHERS COLLEGE, Emporia KS 66801; **Environmental Science.** Dr. Harold Durst, Department of Biology. (Classes to be held in Emporia and Independence).

LOUISIANA STATE University, Baton Rouge 70803; **Marine Science and Wetlands Ecology.** Dr. Harry J. Bennett, Science Training Programs Office, P.O. Box F. (Classes to be held in Thibodaux).

University of NEVADA, Reno 89507; **Environmental Science.** Dr. John H. Trent, Department of Secondary Education.

NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY, Socorro 87801; **Environmental Earth Science.** Dr. Clay T. Smith, Department of Geosciences. One week of concentrated preliminary study, August 14-19, 1972.

NEWARK COLLEGE OF ENGINEERING, Newark NJ 07102; **Urban and Environmental Engineering.** Dr. John Droughton, Department of Mechanical Engineering.

NORTHEASTERN ILLINOIS University, Chicago 60625; **Individualized Instruction in Earth Science and Emphasis on Students' Immediate Environment.** Dr. Musa Qutub, Department of Earth Science.

NORTHWESTERN STATE COLLEGE, Alva OK 73717; **Molecular and Environmental Biology for High School Science Teachers.** Dr. Stearns W. Rogers, Department of Chemistry.

University of NORTHERN IOWA, Cedar Falls 50613; **Environmental Science for Teachers of Chemistry and Physics.** Dr. Robert W. Hanson, Department of Chemistry.

ST. CLOUD State College, MN 56301; **Environmental Science.** Dr. Harold Hopkins, Department of Biology.

ST. JOSEPH College, West Hartford CT 06117; **Environmental Chemistry.** Sr. M. Clare Markham, Department of Chemistry.

ST. MARY'S College, Winona MN 55987; **Terrestrial Ecology, Aquatic Ecology.** Br. Charles Severin, Biology Department.

University of SOUTHERN MISSISSIPPI, Hattiesburg 39401; **Earth Science and Environmental Study.** Dr. Isadore L. Sonnier, Department of Science Education.

STATE UNIVERSITY COLLEGE AT BUFFALO, NY 14222; **Population and Environmental Problems.** Dr. William C. Schefler, Department of Biology, 1300 Elmwood Avenue.

STATE UNIVERSITY OF NEW YORK AT BINGHAMTON, 13901; **Environmental Science.** Dr. Donald R. Coates, Department of Geology.

UNION College, Schenectady NY 12308; **Environmental Chemistry.** Dr. Edwin F. Gillette, Department of Mathematics.

VILLANOVA University, Villanova PA 19085; **Environmental Chemistry.** Sr. M. Cordia Ehrmann, Department of Mathematics and Secondary School Science.

University of VIRGINIA, Charlottesville 22903; **Environmental Ecology.** (Classes to be held in Hampton and Fairfax). Dr. Ertle Thompson, Department of Science Education.

WAYNE STATE University, Detroit MI 48202; **Environmental and Social Biology.** Dr. H. W. Rossmoore, Department of Biology.

University of WISCONSIN—SUPERIOR, 54880; **Environmental Science.** Dr. Rudy G. Koch, Department of Biology. (Classes to be held on UW campuses in Eau Claire, Stevens Point, Superior and Whitewater).

University of WISCONSIN — SUPERIOR, 54880; **Leadership Training Conference for the Dovelopment of Resource Personnel in Environmental Science.** Summer program only, August 7-18, 1972. (Conference to be held at the Chippewa Lake Field Station). Prof. Donald M. Dailey, Department of Physics.

Bibliography Published

A listing of more than 500 standard, recent, and forthcoming books on ecology, **Ecologos Spring 1972**, has been compiled by the staff of Sidney Kramer Books. It includes technical publications, as well as more general titles.

Copies of the listing are available at 10 cents each, or $7.50 per hundred. Requests for single copies should be accompanied by a self-addressed, stamped envelope. All requests should be sent directly to:

Sidney Kramer Books
1722 H. Street, N.W.
Washington, D.C. 20006

IUCN, WWF SPONSOR EUROPEAN ENVIRONMENTAL CONFERENCE

Recognizing the urgency of environmental conservation education "under present circumstances of increased impact of man on the natural environment," participants in the first European Conference on Environmental Conservation Education, held in Switzerland in December 1971, reached consensus that the implementation of such education should include the following activities:

1) appropriate education and instruction in school courses at all levels;
2) education and training in environmental matters in institutes of higher education of all kinds;
3) out-of-school involvement of young people and adults in practical environmental conservation activities;
4) in-service education and training of teachers and others concerned with general and out-of-school education such as youth leaders;
5) the training of professional people concerned with environmental affairs, such as statesmen and administrators, as well as planners, architects, engineers and technologists;
6) the education of the public at large by the use of mass information media and other methods.

This first European Conference on Environmental Conservation Education was attended by specialists on environmental education—scientists, administrators, teachers and other educators. Besides clarifying general concepts, surveying the present situation and pointing out the needs, the Conference formulated specific recommendations for projects and programs in environmental education related to primary and secondary levels, teacher training, higher education and out-of-school education.

It was organized by the International Union for Conservation of Nature and Natural Resources (IUCN) in co-operation with the World Wildlife Fund (WWF) and with the support of the Swiss Federal Authorities and the Canton of Zurich, the MIGROS-Genossenschafts-Bund, the Swiss League for the Protection of Nature, the Swiss National Appeal of WWF, and the Swiss National Commission for UNESCO. The Conference was held from December 15 to 18 at the Gottlieb Dutweiler Institute, Ruschlikon, near Zurich, Switzerland.

A total of 109 participants from 21 European countries (Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, Greece, Italy, Luxembourg, Netherlands, Norway, Poland, Rumania, Spain, Sweden, Switzerland, UK, USSR, Yugoslavia); representatives of nine international organizations (United Nations, UNESCO, FAO, Council of Europe, OECD, IUBS, Boy Scouts World Bureau, IYF, Mediterranean Association for Marine Biology and Oceanography) and observers from three countries (Australia, Canada, USA) in other parts of the world attended.

Under the Chairmanship of **Dr. L. K. Shaposhnikov** (USSR) the Conference developed its program of work through topic-oriented plenary sessions, and smaller working groups on important areas of environmental education.

The Final Report of the 1971 European Working Conference on Environmental Conservation Education is available from:

IUCN Secretariat
1110 Morges
Switzerland

Proceedings of the Conference are scheduled to be published this year; inquiries should be directed to the IUCN Secretariat.

Chlorine Detector Kit Available

LaMotte Chemical Products Company has available a new LaMotte-Palin Model LP-8 Combination DPD Chlorine and pH Outfit which provides accurate readings for free chlorine, monochlorine, dichloramine, and total residual chlorine over the range of 0.1 ppm. to 6.0 ppm. A low range chlorine comparator covers the range of 0.1 to 1.0 ppm, and a high range comparator covers the range of 1.0 to 6.0 ppm. The Phenol Red comparator covers the pH range of 6.8 to 8.2 in 0.2 pH intervals.

AAAS Releases Audiotapes

Audiotapes of twelve scientific symposia related to the environment, recorded at the annual meeting of the American Association for the Advancement of Science in December 1971 in Philadelphia, are available from AAAS.

Either cassettes or five-inch reels (3¾ inches per second for standard machines) may be ordered. Tape prices for single-session symposia are $15; for multi-session symposia, the price is $15 for the first session and $12 for each additional session of the same symposium.

Among tapes available are:

Workers and the Environment—G. Wald, R. Nader, et al.; #89/71, one session.

Indicators of Environmental Quality—W. A. Thomas, G. J. F. MacDonald, P. Hackes, et al.; 91/71, four sessions.

Experimental Manipulation of Natural Systems—W. E. Cooper, D. Simberloff, et al.; 92/71, two sessions.

Environmental Sources of Human Destructiveness—R. C. North, R. A. Falk, et al.; 94/71, five sessions.

Population Control in Social and Economic Perspectives—W. H. Goodenough, J. J. Spengler, H. A. Gould, 96/71, four sessions.

Oceanography—H. B. Stewart, Jr., G. S. Benton, et al.; 100/71, one session.

Energy Crisis: Some Implications and Alternatives—D. E. Abrahamson, J. Fay, B. Commoner, et al.; 101/71, four sessions.

Environmental Noise—J. F. Pizzirusso, R. L. Bannister, et al.; 104/71, two sessions.

Environmental Sciences and International Development—D. Bajracharya, M. T. Farvar, et al.; 110/71, eight sessions.

Heavy Metals as an Environmental Hazard to Fish, Birds, and Man—G. J. Lauer, W. Fulkerson, et al.; 111/71, two sessions.

Technology and Growth in a Resource Limited World—R. U. Ayres, H. Kahn, J. H. Holloman, et al.; 113/71, two sessions.

Can We Develop an Index for the Quality of Life?—S. F. Singer, M. R. Gainsburgh, M. L. Olson, et al.; 117/71, two sessions.

Those interested should order directly from AAAS, enclosing check or money order, and indicating whether cassettes or reel tapes are desired. Address:

American Association for the
Advancement of Science
Department AH
1515 Massachusetts Avenue, N.W.
Washington, D.C. 20005

Publications of Interest . . .

Population issues, information and education provide the focus of the April 1972 issue of **Social Education.** Among articles of particular interest are:

"Population Education as Exploration of Alternatives,"
"Population in the Newer Social Studies,"
"Sources for Population Education"

Single copies are available at one dollar each from:

Editor
Social Education
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

In June 1972 the third in a series of auxiliary textbooks by the Population Reference Bureau will become available. **The World Population Dilemma** is suggested for high school and junior college students; it explains the complexity of demographic trends without detailed statistics, and discusses indirect relationships between continued population growth and nuclear war, environmental pollution, racism and nationalism, and world poverty in a framework which avoids an over-simplified cause-effect nexus.

The text will be available at $2.00 per copy from:

Columbia Books, Inc.
917 Fifteenth Street, N.W.
Washington, D.C. 20005

The U.S. Department of the Interior regularly reviews approximately fifty publications, and periodically reviews about 100 others, in preparation of a semi-monthly **Environmental Awareness Reading List** dealing with environmental matters. Citations include full bibliographic information, with some annotation.

The publication is a cooperative effort of the National Park Service and the Office of Library Services. Subscriptions to the publication, including an annual index, are available for $16 per year from:

The National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22151

Back issues of the **Reading List** are not available.

Periodicals of potential interest to environmental educators include:

National Association for Environmental Education Newsletter (monthly)
11011 S.W. 104th Street
Miami, Florida 33156

Clear Creek: The Environmental Viewpoint (monthly)
617 Mission Street
San Francisco, California 94105

Environment (ten issues annually)
438 N. Skinker Boulevard
St. Louis, Missouri 63130

Environmental Quality (monthly)
6464 Canoga Avenue
Woodland Hills, California 91364

National Wildlife (bi-monthly)
534 North Broadway
Milwaukee, Wisconsin 53202

Oceans (bi-monthly)
125 Independence Drive
Menlo Park, California 94025

Also available are the following directories and guides:

Directory of Organizations Concerned with Environmental Research
Lake Erie Environmental Studies
State University College
Fredonia, New York 14063

A Resource Guide on Pollution Control: Federal, State and Local Agencies and Organizations that Deal with Environmental Problems
American Association of University Women
2401 Virginia Avenue, N.W.
Washington, D.C. 20025

Directory of Natural Science Centers for Youth
Natural Science Centers for Youth Organization
763 Silvermine Road
New Canaan, Connecticut 06840

Career Education in the Environment: A Handbook, produced for U.S. Office of Education Division of Vocational and Technical Education, by Olympus Research Corporation, Washington, D.C., was designed for use in secondary schools to explore environmental problems and solutions and to provide information on existing and emerging career opportunities in the field.

The handbook is directed toward and intended to be used by school administrators, curriculum planners, life sciences and social sciences instructors, vocational counselors, librarians, and students. Its four chapters include: Career Education and the Environment, Environmental Careers, Environmental Education Curriculum, and a Bibliography.

The 379-page document is available for $3.00 per copy from:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Radio Tapes Prepared

Storer Broadcasting Company, Radio Division, is making available a composite tape of eighteen video mini-programs on the topical subject of ecology. This public service series was produced in cooperation with William D. Ellis of Editorial Services, Inc., in Cleveland, Ohio. Each program deals with a different problem regarding the environment in a dramatized format.

The programs average from two to three minutes in length. Among the topics included on the tape are:

Air pollution
How to reduce waste and junk pollution
How to fight noise pollution

Storer Broadcasting Company is the first radio station group in the country to research, produce and broadcast this type of comprehensive, educational anti-pollution environmental protection series.

The eighteen programs have been reproduced on one seven inch reel of tape at 7½ ips. The series is available on request at a total charge of $5.00, which covers the cost of the tape, duplication and mailing fees from:

Storer Broadcasting Company
Radio Division
1801 East Ninth Street
Cleveland, Ohio 44114
Phone: (216) 696-5422

Youth Conservation Corps 1972 Plans Announced

(From Conservation News, 37:6)

The Youth Conservation Corps, established under PL 91-378 and a phenomenal success in its first season of pilot operations last summer, will operate 95 centers throughout the U.S. and American Samoa this summer for eight weeks starting late in June. About 3,000 youths of both sexes, ages 15 through 18 and from all economic, ethnic and social backgrounds, will be employed. For their eight weeks of conservation work the young men and women will receive approximately $300 take-home pay, after deductions.

In their recent joint announcement concerning the 1972 YCC Program, the Secretaries of the Interior and Agriculture disclosed that the Corps will be funded at a level of $3.5 million, up $1 million from last summer. The funds were made available by Congress late in 1971 by a supplemental appropriation.

About half of the YCC participants will be under the direction of the Department of the Interior on lands of the Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, Bureau of Sport Fisheries and Wildlife, the National Park Service, and the Territorial Affairs Office. The other half will be employed in National Forests operated by the Department of Agriculture's Forest Service. Recruiting Areas will be designated for each of the 50 states, the District of Columbia and American Samoa. For each YCC camp, a public school system or other youth-serving organization will be named to recruit and process candidates who live within the boundaries of a designated area. This selection process serves to minimize transportation costs by employing Corps members as near to their places of residence as feasible, and it also limits the total number of candidates who must be considered for the relatively few positions available under the limited pilot study.

The YCC program is designed to fill three needs:

1) conservation work that is vitally needed to improve the quality of our lands and waters;
2) gainful summer employment for the nation's youth; and
3) the buildup of a reserve of environmentally aware young citizens, knowledgeable of their country's irreplaceable heritage of natural and historic resources—and of their own place in the ecological cycle.

During the first YCC pilot study last summer, the two Departments employed 2,676 young men and women in 64 YCC camps located in 37 states, the District of Columbia and American Samoa. Total funding for the 1971 summer program was $2.5 million, while the total value of conservation work accomplished by Corps members was appraised at $1.8 million. In addition, YCC participants received approximately 500,000 hours of environmental education directly associated with work program accomplishment.

With few exceptions, both residential and non-residential YCC programs will again be operated on a co-educational basis this summer. Residential camps have capacities ranging from 12 to 50 Corps members, and camp facilities ranging from tents and rough bunkhouses to large barracks-type buildings and college dormitories. In some instances, small groups may occupy remote ranger stations or temporary work camps.

YCC camp sites and non-residential projects were located on the basis of two major considerations:

1) availability of existing facilities that can be readied for YCC occupancy with a minimum expenditure of time, work and money; and
2) potential of the area for developing worthwhile conservation work projects on Federal lands administered by either of the two Departments at or near the YCC camp sites or non-residential projects.

Senator Henry M. Jackson, Chairman of the Senate Interior and Insular Affairs Committee and—along with **Rep. Lloyd Meeds** (Wash.)—one of the founding fathers of the YCC, held public hearings on the Program last fall after introducing a bill that would expand the YCC to a size of 100,000 with an annual budget of $150 million. The bill continues to languish in committee, however, and it is doubtful that passage of the bill will be pursued very vigorously during this year of national elections.

President Nixon has already requested $3.5 million for the YCC in his Fiscal Year 1973 budget. Hence, it appears likely that the YCC will continue to operate at about the same level in the summer of 1973 as in 1972. New legislation will be required to keep the program going after that because the present law, P.L. 91-378, authorized only a three-year pilot program.

Additional information on location of YCC camps and recruitment can be obtained from school counselors or from either of the addresses below:

Governor Aker
Youth Conservation Corps
Department of the Interior
Washington, D.C. 20240

Bob Lake
Youth Conservation Corps
Forest Service
Department of Agriculture
Washington, D.C. 20250

AUSTRALIAN STUDENTS STUDY ANIMAL BEHAVIOR, MIGRATION

Students of Timbertop, Geelong Grammar School's IV Forum outpost in the Victorian Alps of Australia, are using its special environmental opportunities to undertake research in animal behavior and migration, using telemetry. Students in IV Forum average about 15 years of age.

According to an article in a recent issue of the Australian Conservation Foundation's **Conservation Education Digest,** the school has for several years been involved in a bird-banding scheme; nearly 1000 feathered locals, mostly currawongs, have been banded. Currently boys are involved with a project to place small radio transmitters on possums and wombats and follow their movements. The students are building the transmitters themselves, and devising mathematical models to explain the data from both banding and telemetry work.

The next phase will involve putting transmitters on pelicans and tracking these by satellite. The Commonwealth Scientific and Industrial Research Organization and private foundations are financing this; NASA in the United States is investigating how to receive signals from such birds along the whole of their transequatorial migration routes.

This extension of the normal 4th Forum curriculum is being fostered by **Mr. David Nicholls,** with senior staff at the main school, and is part of the general emphasis on leading boys to understand and appreciate the natural resources of flora and fauna in the area.

SMEAC

Dr. Robert W. Howe
Director

Dr. Stanley L. Helgeson
Associate Director
Science Education

Dr. Jon L. Higgins
Associate Director
Mathematics Education

Dr. F. Joe Crosswhite
Research Associate
Mathematics Education

Dr. Patricia E. Blosser
Research Associate
Science Education

Dr. Robert E. Roth
Associate Director
Environmental Education

Dr. John F. Disinger
Research Associate
Environmental Education

**ERIC Information Analysis Center
for Science, Mathematics, and
Environmental Education
1460 West Lane Avenue
Columbus, Ohio 43210**

ADDRESS CORRECTION REQUESTED

1240—RF-2228
Environmental Education—Volume 2, Number 5, 1971-72

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Environmental Education National Council Submits Annual Report

On March 31, 1972, the National Advisory Council on Environmental Education, established under P.L. 91-516, submitted its first Annual Report to the U.S. Commissioner of Education for inclusion in the Commissioner's annual report to Congress. In its foreword, the Council stated:

The most compelling problems confronting the people of the world in this generation are peace, poverty, population, and pollution.

Throughout the world there is growing concern over the management of environmental pollution, resource waste, and population density. Most Americans are aware that we are harming the fragile life support system of "spaceship earth" through a variety of harmful human activity, and this trend must be reversed if man is to survive.

The public news media has been largely responsible for developing this sense of environmental awareness, but the nature of the media is such that it has not gone beyond presenting the immediacy of the problems. Awareness must lead to understanding and then to constructive action if the quality of life is to be maintained and preserved.

Clearly there is a need for formal and nonformal education at all levels in the public and private sectors. Programs must be designed to help citizens develop the skills, attitudes, knowledge, and commitment necessary to participate intelligently in the decision-making process affecting the environment, natural resources, and human potential. Retraining will have to be built into continuing programs especially for technicians, professionals, planners, and educators, as technology accelerates changes in labor requirements and as new careers and lifestyles develop. Ideally such programs would reinforce a national awareness that:

—the survival of humankind depends upon co-existence with each other and the limited planetary natural resources,

—sound resource management and environmental planning supported by an informed public are absolutely essential to that survival,

—the entire educational system must be reoriented and expanded to reflect man's role in the environment and the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology, and urban and rural planning to the total human environment.

The environmental Education Act of 1970 (Public Law 91-516) was created to encourage the development of programs dealing with the process of relating man to his environment. Specifically, the legislation provides for Federal grants to a variety of public and private agencies for the development of formal and nonformal community education projects, for an effort at the national level to coordinate environmental education programs and activities offered by Federal agencies, and a public and technical information operation in the U.S. Office of Education. Within that office, an Office of Environmental Education has been set up to implement these functions.

The Act also provides for the establishment of a 21-member Advisory Council on Environmental Education through which a broadly representative group of citizens contributes their expertise to the program. The Council has existed as a working unit only since December, 1971 and has been severely handicapped by the lack of funding and staff personnel. It has developed an organizational structure and an operating budget proposal. Four permanent subcommittees and a steering committee are further evaluating council goals and responsibilities.

The Council sees itself as an official body representing the environmental education interests and needs of the people of the United States. As such it is necessary for the Council to:

—become part of the planning process for programs designed to implement the Environmental Education Act

—review these programs once they have become operational

—recommend changes and modifications as deemed necessary

—inform the proper offices and officials of problems beyond the jurisdiction and capability of the Council

—help the general public become aware of the necessity of the environmental education effort and provide information on the progress and programs throughout the country.

In the report, the Council defines its duties and responsibilities as follows:

Goals and Evaluation. The Council should work with the Environmental Education Office staff in setting up goals and objectives for the environmental education program, and should recommend appropriate evaluative mechanisms and criteria for determining if and when these goals and objectives are met.

Programs. The Council should recommend programs and procedures to be carried out by the Environmental Education Office professional and support staff to attain the goals and objectives established.

Administration. The Council should continuously study the operation and administration of the Environmental Education Office and the programs it conducts and offer suggestions and recommendations which will result in a more efficient operation.

Resource Allocation. The Council should work with the Environmental Education Office staff in allocating human and financial resources to the various programs so that the

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maximum amount of progress is made with the resources available.

Public Leadership. The Council sees itself and its individual members as advocates for both formal and nonformal public education programs, community programs, and citizens groups in environmental education throughout the nation, and as part of the synergistic mechanism through which the efforts of many agencies—local, state, national and international—may be encouraged to work together to advance such programs. Public Council meetings and activities in appropriate locations, printed public communications, as well as local efforts by individual committee members, are seen as the means of advancing the cause of environmental education nationwide.

Official Communication. As a representative of the public in environmental education matters, the Advisory Council has a responsibility to communicate to appropriate offices and/or officials reports and information as to Council activities as well as information on programs and accomplishments in the field of environmental education made possible through Public Law 91-516.

The Council has a responsibility to bring to the attention of appropriate offices and/or officials problems or concerns in the field of environmental education which cannot be solved by the Council or by the Environmental Education Office Staff.

Council Resources and Activities. The Advisory Council believes that the functions outlined should be carried out for as long as they are of value in advancing environmental education. The need will certainly continue throughout the three-year life of Public Law 91-516 and beyond. The Council, as part of its evaluative function, will evaluate its own contribution regularly and will make such recommendations as are appropriate. If the Council is to be effective in its work, it must have at its disposal adequate human and financial resources with which to accomplish the objectives it has set for itself. Such resources would include a full-time executive secretary and clerical support, funds sufficient to print necessary reports and other documents, and adequate funds to permit at least two full Council meetings per year as well as committee meetings and individual conferences as needed.

Three new members have been appointed to the National Advisory Council:

Ms. Nancy Ayers
Executive Director
Susquehanna Environmental Association
616 Pheasant Lane
Endwell, New York

Executive Director of the Susquehanna Environmental Education Association, Ms. Ayers also serves on the board of a number of professional and civic action organizations and is an environmental education consultant.

Ms. Linda Lee
1750 Pennsylvania Avenue, N.W.
Washington, D.C. 20006
or
2713 P Street, N.W.
Washington, D.C. 20036

An attorney dealing in environmental law, Ms. Lee is knowledgeable in Federal agency activities. She has served as staff counsel to the Citizen's Advisory Committee on Environmental Quality and General Counsel to the Inter-American Social Development Institute.

Ms. Judith Schultz
Raymond Walters College
University of Cincinnati
Cincinnati, Ohio

Professor of Biology at the University of Cincinnati, Ms. Schultz is a doctoral candidate. Her special interests include human cytogenetics, population biology, ecological and environmental studies, Biology in the Two-Year College, and the interdisciplinary approach to higher education.

Australian EPA Plans Educational Programs

Although mainly concerned in the early stages of its activities in bringing pollution under control, the Environmental Protection Authority of Australia sees as one of its responsibilities the encouragement of general environmental education at both adult and school levels, according to an article in a recent edition of the Australian Conservation Foundation's **Conservation Education Digest.**

An Education and Information Subcommittee has been formed with terms of reference including advice to the Authority on its initial publication to both adult and school levels. It is hoped that materials on the environment, both produced and coordinated by the Authority, will be issued in due course in a special folder for schools. Another project is the production of an environment magazine.

Inquiries should be addressed to:

Mrs. G. O'Donoghue
Environmental Protection Authority
232 Victoria Parade
East Melbourne, 3012
Australia

Nutrition Education Reference Lists Now Available

The National Nutrition Education Clearing House (NNECH), established in 1971 by the Society for Nutrition Education, has published its first two reference lists of nutrition education materials: **Primary and Intermediate Teacher References and Teaching Materials** and **Pregnancy and Nutrition.**

Two other lists, **Secondary Teaching Materials and Teacher References** and **General Teacher References,** will be available this year.

The cost of each list is 50 cents to members of the Society for Nutrition Education and $1.50 to nonmembers. Check or money orders, payable to the Society for Nutrition Education, should accompany each order.

Copies and/or details of nutrition education materials are still being sought for inclusion in future proposed lists and for updating lists already published. Address inquiries or materials to:

The Librarian
Society for Nutrition Education
P.O. Box 931
Berkeley, California 94701

STOCKHOLM CONFERENCE ATTEMPTS IDENTIFICATION OF ENVIRONMENTAL PROBLEMS

In 1968, the United Nations General Assembly endorsed a Swedish proposal calling for a conference on the human environment. In support of the proposal, a special Conference-Secretariat was established at the U.N. in Geneva and **Maurice F. Strong** assumed the title of Secretary-General on January 1, 1971. The Conference was held in Stockholm, Sweden, **June 5** through **June 16, 1972**. The aims—**to identify the most urgent environmental problems and obtain agreement on actions to deal with them.**

The Conference format was designed so that three committees would sit concurrently:

The **first** dealt with marine pollution, monitoring and surveillance and the international organizational implications of the proposed actions:

The **second** dealt with natural resources and their conservation and the subject of Development and Environment:

The **third** study was problems arising from the spread of human settlements and necessary measures that need to be taken in the field of **education** and **information**.

In preparation for the conference, the United Nations member countries were requested to submit national reports describing their environmental problems and those actions being taken to resolve them. In addition, members were asked to identify topics of sufficient importance to merit international attention.

In a recent speech before the National Press Club in Washington, D.C., Strong referred to the inherent value of these "pre-conference" reports, as at least 60 countries of the 134 qualified to participate in the conference became involved in evaluating environmental concerns for the first time.

In response to the request for national papers, the U.S. Office of Education, in cooperation with the Office of Environmental Education, on behalf of the Committee on International Environmental Affairs for the U.N. Conference on the Human Environment, prepared U.S. Basic Paper #9 **Environmental Education and Training.** A summary of that report follows:

Summary

"The growing **environmental education** movement is a response to the challenge of creating citizenries not merely aware of the crises of overpopulation, mismanagement of natural resources, pollution, and degradation of the quality of life, but also able to focus intelligently on the means for coping with them. Education must provide the awareness, the knowledge, the skills, and the motivation for this formidable task.

"In the U.S., this is the rationale behind the Environmental Education Act of 1970. It is behind the new emphasis on environmental education and training in state and federal agencies. It has provided the momentum for numerous innovative programs in schools and colleges throughout the country and sparked innumerable efforts at community education.

"The present picture is characterized by a certain lack of coherence, however. In part, this is because environmental education has yet to be adequately defined. Some environmentalists see environmental education as an expanded version of conservation education. Others would build on the tradition of outdoor education. Scientists tend to see environmental education as a form of 'relevant' science education and, indeed, most of the programs introduced to date have tended to focus on the natural sciences. Urbanists and other social scientists, on the other hand, are beginning to develop materials keyed to man-made environments.

"More and more, however, environmental education has come to emphasize the educational process itself, the use of the environment as a tool to achieve pedagogical results throughout an individual's lifetime. While many of the programs currently under way in the U.S. may not be **specifically** applicable in other countries, their **general** approach is likely to be highly relevant elsewhere. Specifics of content and method are still matters for debate, but a consensus appears to be developing around the following characteristics: 1) multi-disciplinary content, emphasizing the inter-relationships in nature, 2) focus on contemporary problems relating to urban and rural, man-made and natural environments, 3) incorporation of formal and nonformal education processes and utilization of resources outside the classroom, 4) concentration on developing understanding and attitudes as well as disseminating information, and 5) concern with all age groups.

Suggestions for International Activity

"In much of the world—especially in the developing countries—governments do not attribute environmental programs the priority they might if the connection between environmental quality and development were better understood. Emphasis therefore needs to be given to enhancing environmental awareness among policy- and opinion-makers and on promoting educational materials geared to the differing senses of environmental priorities in various parts of the world.

"The growing trend to international environmental activity has not taken full cognizance of the importance of the education component at all levels. In addition to UNESCO, with a specific education mandate, a number of international and national organizations might usefully sponsor projects and programs in environmental education and training. Among them are the UN Development Programme, the UN regional commissions and specialized agencies, international financial institutions, bilateral aid and exchange programs, national laboratories and universities, and nongovernmental citizens organizations. Priority should be given to enhancing environmental awareness among government officials, particularly those concerned with economic policy and planning. At other levels, consideration might be given to using university students for international data collection once a world environmental monitoring system is established and to encouraging the participation of citizen organizations in international activity.

"Special efforts need to be made to assure interdisciplinarity in environment-related research and training. UNESCO might well consider mounting a series of interdisciplinary 'dialogues' at which university professors can discuss the contributions their special knowledge can make to environmental studies and the changes in teaching matter or methods that may be implied. It could also provide selected administrators of schools and education ministries with first-hand exposure to varieties of environmental education. Work could begin immediately on development of supplementary materials for teaching environmental education related to specific countries and regions as well as to the world 'commons'—the oceans and the air mantle. International research in environmental education could usefully supplement national research efforts under a number of auspices, including the International Institute for Education Planning and the Center for Education Research and Innovation, and distribution of relevant materials for adult education should be encouraged.

"Looking to the future, emphasis in environmental education programs would be expected to shift from supplementary materials to more comprehensive curriculum development, from focus on education officials to teacher training, from higher to lower levels, etc. Further in the future, it is possible to envision more elaborate and long-range institutional innovation, such as Regional Environmental Education and Training Institutes, a professional environmental education association, an International Environmental Education Research Institute, a network of International Ecology Centers, and a center for development of materials for citizen education."

Document Availability

The U.S. Department of State has arranged for the publication of the documentation prepared by the Secretariat for the United Nations Conference for consideration by the nations attending the conference. The documents total 632 pages and are being reproduced by the National Technical Information Service (NTIS) of the Department of Commerce. A complete set may be purchased for $12.00 or three parts individually as indicated below. The following table lists the part numbers, the number of pages of each section and the NTIS order number together with the price.

PB 206618-1	$3.00	**Part I** includes Agenda (4 pp), Annotated Agenda (12), Rules of Procedure (14), Declaration (12), Action Proposals (60)
PB 206618-2	$6.00	**Part II** includes Planning & Management of Human Settlements for Environmental Quality (40), Environmental Aspects of Natural Resources Management (100), Identification & Control of Pollutants & Nuisances of Broad International Significance (100), Educational, Informational, Social & Cultural Aspects of Environmental Issues (40), Development & Environment (70), International Organizational Implications of Action Proposals (50)
PB 206618-3	$3.00	**Part III** includes Administration Coordinating Committee Report (80), Bibliography (50)
PB 206618-SET	$12.	Complete set of above

The Action Proposals included in Part I are a summary of the issues and includes as an appendix all recommendations for national and international action. Thus Part I should meet the requirements of most of the public interested in the Stockholm meeting. Orders accompanied by check or money order should be addressed to: National Technical Information Service, Department of Commerce, Springfield, Va., 22151.

The following list is the Secretary of State's Advisory Committee for the 1972 U.N. Conference on the Human Environment:

Chairman: **Howard H. Baker,** Jr., U. S. Senator

Robert Anderson
Chairman of the Board
Atlantic Richfield Corporation

Mrs. Bruce B. Benson
President
League of Women Voters

Jules Bergman
Science News Editor
American Broadcasting Company

Governor Jimmy Carter
of Georgia

John S. Chapman, Chairman
AMA Council on Environment
and Public Health

Edward N. Cole
President
General Motors Corporation

Christopher DeMuth
Former White House
Staff Member

Mayor William Dyke
of Madison, Wisconsin

Joseph L. Fisher
President
Resources for the Future

John W. Hanes
Vice Chairman of the
Governor of Virginia's
Council on Environment

John Harper
Chairman of the Board
Alcoa

J. George Harrar
President
Rockefeller Foundation

Philip Hauser
Director
Population Research Center
University of Chicago

Martin S. Hayden
Editor-in-Chief
Detroit News

Dennis Hayes
Environmental Action

Sydney Howe
President
Conservation Foundation

Frank P. Lloyd, President
American Society of
Planning Officials

Charles Luce
Chairman of the Board
Consolidated Edison Corporation

James E. Mack
Member of the National
Urban League

Thomas F. Malone, Chairman
Committee on International
Environmental Problems
National Academy of Sciences
National Academy of Engineering

John Nellor, Chairman
Environmental Committee
Association of State
Universities and Land Grant
Colleges

Laurance Rockefeller, Chairman
Citizen's Advisory Committee on
Environmental Quality

George H. R. Taylor, Secretary
AFL-CIO Committee on Atomic
Energy and Natural Resources

John Ross Vincent
Ecology Center of
Louisiana, Inc.

Aubrey Wagner
Chairman of the Board
TVA

Mrs. Thomas Mercer Waller
Member, Board of Governors
The Nature Conservancy
Gordon K. Zimmerman
President, Natural
Resources Council of America
Ambassador George H. W. Bush*
U.S. Permanent Representative
to the United Nations
Robert Cahn*
Member of the President's Council on
Environmental Quality
Fitzhugh Green*
Associate Administrator
U.S. Environmental Protection Agency
Christian A. Herter, Jr.*
Special Assistant to the
Secretary of State for
Environmental Affairs
Department of State
* Ex Officio Members

"Man and Environment" Bibliography Released

A set of extensive bibliographies developed for the "Man and Environment" course headquartered in Miami, Florida, is available from the National Association for Environmental Education. It is entitled **Man and Environment: Bibliography.**

The bibliographies were developed as part of a workshop held in Las Vegas in 1970. Purpose of the workshop was to outline the contents of a general education course for college students, the overall objective of which is to have students recognize man's interdependence with his environment and his responsibility for it. Some twenty colleges have participated in the development of the course, now operational, and its related bibliographies.

Copies of the bibliography are available for $2.00 per copy from:

National Association for Environmental Education
11011 S.W. 104th Street
Miami, Florida 33156

PRB BEGINS PUBLICATION OF POPULATION NEWSLETTER

Publication of **Interchange**, a population education newsletter, has been initiated by Population Reference Bureau, Inc., "in response to increasing demand for the interchange of ideas and experiences rapidly evolving in population education," according to **Kathryn Horsley**, editor.

Two Spring 1972 issues are designed as pilot ventures; regular bi-monthly publication is planned for Autumn 1972. The initial (March) issue was sent to approximately 8,000 teachers, curriculum supervisors, local and state administrators, as well as private and university centers of population education activity.

Persons interested in receiving this publication should contact:

Interchange
Population Reference Bureau, Inc.
1755 Massachusetts Avenue, N.W.
Washington, D.C. 20036

"Journal of Ekistics" Subscriptions Clarified

An inadvertent error in Environmental Education **Newsletter** Volume 2, Number 3, 1971-72, has led to confusion between the **Journal of Ekistics**, an international publication dealing with the problems of science and human settlement, and a comprehensive volume entitled **Ekistics** authored by C. A. Doxiadis and published by Oxford University Press.

Subscription rate for the monthly **Journal of Ekistics** is $24.00 a year; it may be ordered from

Athens Center of Ekistics
Box 471
Athens, Greece

or

Ekistics
Graduate School of Public and International Affairs
University of Pittsburgh
Pittsburgh, PA 15213

Persons wishing to submit articles for consideration in the **Journal of Ekistics** are encouraged to do so through American correspondents:

Mr. James Maltby
Doxiadis Associates
1058 Thomas Jefferson Street, N.W.
Washington, DC 20007

or

Prof. Spenser W. Havlick
School of Natural Resources
University of Michigan
Ann Arbor, MI 48104

Environmental Education Publication Presented by NSTA

Environmental Education in the Elementary School, a selection of articles reprinted from The National Science Teachers Association's elementary school journal, **Science and Children**, is now available.

Compilers of the 17-article publication were **Sylvia K. Shugrue** of the District of Columbia Public Schools and **Bernice Lamberton** of Georgetown College Observatory. Authors include **Ed Labinowoch, Mary Hurlbut Cordier, Clifford A. Hardy, Paul J. Cowan, Beth Schultz, Warren E. Yasso, Daniel J. Brovey, Rodger W. Bybee, Robert E. Samples, Matthew J. Brennan, Thomas Paskalides, Eunice Burdette, Thomas Howie, William Laslo, Daniel Saltrick, William H. Matthews, III, Peter P. Faiella, Sylvia K. Shugrue, Thomas L. Ayers, Janice H. Davis,** and **Walter E. Steidle.**

Single copies of the publication, Stock Number 471-14626, are available for $2.75, while 10 percent discounts are given for quantity orders of 2-9 copies, and 20 percent discounts for ten or more copies from:

National Science Teachers Association
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

SMEAC

Dr. Robert W. Howe
Director

Dr. Stanley L. Helgeson
Associate Director
Science Education

Dr. Jon L. Higgins
Associate Director
Mathematics Education

Dr. F. Joe Crosswhite
Research Associate
Mathematics Education

Dr. Patricia E. Blosser
Research Associate
Science Education

Dr. Robert E. Roth
Associate Director
Environmental Education

Dr. John F. Disinger
Research Associate
Environmental Education

**ERIC Information Analysis Center
for Science, Mathematics, and
Environmental Education
1460 West Lane Avenue
Columbus, Ohio 43210**

ADDRESS CORRECTION REQUESTED

1240—RF-2228
Environmental Education—Volume 2, Number 6, 1971-72

SMEAC

ERIC

State Coordinator List Updated

Since the publication several months ago of a list of Environmental Education Coordinators at the state level in Volume 2, Number 2, of this **Newsletter**, four changes have been reported to this office. Persons interested in maintaining an up-dated list should make the following modifications:

Mr. Charles Holtzer, Consultant
Environmental Education Improved Learning Unit
Colorado Department of Education
State Office Building, 201 E. Colfax
Denver, Colorado 80203
303-892-2211

Dr. David W. Yaseen, Director
Conservation and Environmental Education
State of **Illinois**
Office of the Superintendent of
Public Instruction
316 South Second Street
Springfield, Illinois 62706
217-525-3330

Mr. William B. Ewert, Consultant in
Science Education
State Department of Education
64 North Main Street
Concord, **New Hampshire** 03301
603-271-1110

Dr. William Croasdale
University of Rhode Island
Department of Education
Kingston, **Rhode Island** 02881
401-792-2446

"GASP" RELEASES FILM

Don't Hold Your Breath, an 18-minute, 16 mm., color-sound film providing testimony by a biologist, a physician, an economist, a registered nurse, and concerned citizens showing how air pollution affects their special disciplines and their lives, is available for purchase or rental from **Group Against Smog and Pollution (GASP)**.

GASP reports that the film was shown before a joint session of the Pennsylvania legislature, and is in such demand that eleven prints in addition to the original have been made and are in circulation.

Purchase price of the film is $125. It may be rented for $10, to cover postage and handling charges, from:

Group Against Smog and Pollution
P.O. Box 2850
Pittsburgh, Pennsylvania 15230

Environmental Education Review Available Through EDRS

The three-part review of environmental education programs and materials funded by the U.S. Office of Education and announced in Volume 2, Number 3, of this **Newsletter** is now available through ERIC Document Reproduction Service.

The project was directed by Dr. Stanley L. Helgeson of ERIC/SMEAC and Dr. Nicholas Helburn of ERIC/ChESS.

Included are three communications reports targeted for three audiences: elementary and secondary school teachers (ED 059 913), teachers of urban/disadvantaged (ED 059 914), and school administrators (ED 059 915).

Further information and abstracts may be found in the June 1972 issue of **Research in Education.**

Water Resources Information Network Under Study

The feasibility of a national computer network of retrieval centers for water resources information will be studied by the University of Oklahoma under a $99,858 grant from the Office of Water Resources Research (OWRR).

The grant also covers initiation and service for the first three of these centers located at the University of Wisconsin, Cornell University and North Carolina State University.

These centers, as well as the Water Resources Scientific Information Center in OWRR, will be connected by remote terminals and telephone lines to the Merrick Computing Center facilities at the University of Oklahoma.

The Generalized Information Processing System (GIPSY) developed by **James Sweeney** of the University of Oklahoma will be used, and will allow computer searches of the OWRR-WRSIC data base, containing about 40,000 full-text abstracts in all fields of water resources, to be requested from any one of the three retrieval centers.

Further information is available from the Water Resources Research Institute at the University of Wisconsin, Madison; Cornell University, Ithaca, New York; or North Carolina State University, Raleigh.

ENVIRONMENTAL CONSULTANTS DIRECTORY PLANNED

An annual Directory of Environmental Consultants will be published beginning in 1972. Environmentally concerned professionals interested in having their names and short resumes appear in the Directory should send a No. 10, self-addressed, stamped envelope to:

Directory of Environmental Consultants
P. O. Box 8002
University Station
St. Louis, Missouri 73108

SE 017 938

USOE Announces Title III Environmental Funding

Seventeen programs selected for funding by the U.S. Office of Education under Title III, ESEA, during 1972 are described by Dr. Wilhelmina Hill of the Title III Office in an article in the Spring 1972 issue of **Journal of Environmental Education.** This article is titled "Model Environmental Programs."

The programs include:

A Model Educational Program in Ecology, Kindergarten Through Adult Education, Los Angeles, CA, Unified School District;

Model Strategy for an Effective Environment Education Program, District School Board of Lee County, FL;

Woodstock Environmental Education Project, Community Unit School District No. 200, IL;

Cooperative Learning Through Environmental Activities in Nature, Shawnee Mission Unified District No. 512, KS;

Environmental Education Demonstration Project, Unified School District No. 501, Topeka, KS;

Strategies for Environmental Education-Project SEE, School District of the City of Wyandotte, MI;

Community Environmental Studies Program for Grades 5-12, Golden Valley, MN, School District No. 275;

Implementation of State of New Jersey Plan for Environmental Education, Newark Board of Education;

Sole Supervisory District of Putnam and Westchester Counties, Yorktown Heights, NY;

School/Community Cooperative Environmental Studies Project, Carteret County, NC, Board of Education;

Urban-Suburban Cooperative Project in Environmental Education, Montgomery County, PA, Superintendent of Schools Office;

An Interdisciplinary Problem-Solving Approach in Environmental Education, Berks County, PA, School Board;

An Environmental-Ecological Education Center, Anderson, SC, School District No. 5;

Urban-Suburban Environmental Education Program, Bellevue, WA, Public Schools;

Master Plan for Environmental Education in the Milwaukee Public Schools, Milwaukee, WI, Public Schools;

ECO Curriculum Development and Learning Laboratory, Laramie, WY, County School District No. 1;

Fall River, MA, Public Schools.

Earth Awareness Foundation Plans Environmental Education Guide

The Earth Awareness Foundation, a non-profit educational organization, is now involved in planning a handbook guide for environmental education, particularly at the high school level, reports **Earlene Barbeau,** EAF Administrative Assistant.

Objective of the Foundation is "to provide the average citizen with the motivation, direction and sense of purpose necessary to preserve and protect the complex and somewhat fragile environment sustaining life on Spaceship Earth." EAF is currently developing throughout the U.S. youth organizations known as "Earth, I Care" Clubs, providing them with assistance in conducting activities designed "to instill a reverence for life and a clearer understanding of the forces of man and nature acting over the long term to change our global environment."

Further information concerning this organization may be obtained by contacting:

Earth Awareness Foundation
1730 NASA Blvd.
Suite 211
Houston, Texas 77058

Venezuelan Youth Program Recounted

Dr. Fernando Gabalden, a Latin American delegate at the recent International Youth Conference on the Human Environment in Hamilton, Ontario, in August 1971 has recounted how his "Science Center" youth organization with about fifty members (mostly secondary school and university students) are bringing what amounts to educational reform to Venezuelan schools.

Members of the organization have prepared 45-minute audio-visual programs with pamphlets and these are presented by them in schools. The aim is to expose all primary and secondary students in the country to some fundamental and ecological concepts.

These presentations in the schools have been very popular, and their relative brevity means that members of the youth organization can go into a school for a day and reach perhaps a thousand students without unduly disrupting the school program. Another function of these delegations is to initiate indigenous environmental groups within the schools. These are then in charge of organizing further talks, excursions, work parties, etc., and they maintain close contact with the members of the Science Center who made the initial contact.

It has been found that following an audio-visual presentation in the school and follow-up stimulus from the indigenous group, students have pressed teachers with questions concerning ecology and the environment. This has forced teachers to become familiar with the matter and this in turn has resulted in a stimulus within the school for the staff and administration to offer better and more relevant material in the curriculum.

AAAS RELEASES "ENERGY GAME" FILM

The Energy Game, a television film produced by the Office of Communications Programs of the American Association for the Advancement of Science and National Educational Television during the December 1971 AAAS Convention, is now available as a 16 mm. film, on loan at a nominal fee.

Another film, **Science and the Reality of Politics,** from the convention series *Science '71: A Report to the Nation* also is available.

Hosted by **David Prowitt,** anchor man as well as executive producer of the series, **The Energy Game** features these guests discussing the electric power crisis in the United States, particularly the problem of atomic power plants: **Barry Commoner,** Washington University; **S. David Freeman,** University of Pittsburgh; **Harold Green,** George Washington University; **Milton Rubin,** Raytheon Corporation; and a panel including **Alvin Weinberg,** Oak Ridge National Laboratory; **Arthur Templin,** Lawrence Radiation Laboratory; and **D. E. Abrahamson,** University of Minnesota.

Rental of the film is free, but a $10 charge will be made to cover cost of handling. Those interested should contact:

AAAS
Office of Communications Programs
1515 Massachusetts Ave., N.W.
Washington, D.C. 20005
202-467-4438

NIMH Releases Report on Marihuana Use

A government report released recently outlines research results on marihuana, including these findings:

—Marihuana use has increased and is very widespread, amounting to as high as 90 percent in some groups of high school students.

—Heavy use of marihuana is clearly associated with the use of other drugs as well, but there is no evidence to date that marihuana by itself causes other drug use. Rather, the small percentage of persons who use marihuana most frequently are likely to spend time in settings where general drug use is common practice.

—Marihuana use decreases intraocular pressure, a finding which may have therapeutic implications in glaucoma patients.

The second annual report on **Marihuana and Health**, sent to Congress by the Secretary of Health, Education, and Welfare, also adds evidence to support the contention that driving while "high" on marihuana can be hazardous.

"Since the first report to Congress on marihuana and health, our knowledge of this complex issue has significantly advanced in almost all aspects," said **Dr. Bertram S. Brown**, director of the National Institute of Mental Health and Special Assistant to the Secretary for Drug Abuse Prevention. "We have a far better picture of the extent of present usage in the United States and of the basic nature of the material, and essential basic research on short-term effects in animal and man has been done."

"It is increasingly apparent that any satisfactory answer to the question of health and marihuana must take into account such multiple factors as the context and purpose of use, the age, sex, and physical and psychological characteristics of the user, variations in the marihuana used, dosage, frequency, and method of use, and other factors," he said.

Annual reports on the health consequences of using marihuana are required by law. The report was prepared by the National Institute of Mental Health, a component of HEW's Health Services and Mental Health Administration.

The total number of those who have ever used marihuana in the United States is estimated to fall between 15 and 20 million, the report states. Although many of these persons experiment with marihuana and then do not continue to use it, over half are estimated to use the drug one or more times per month. The 15-20 million figure is based on a number of studies and surveys conducted by various researchers. Because of the time element, it does not include a recently announced study of the National Commission on Marihuana and Drug Abuse, which indicated that there are as many as 24,600,000 persons who are using or who have used marihuana. This study will be included in further analyses during the forthcoming year.

Dr. William E. Bunney Jr., newly-appointed director of the NIMH Division of Narcotic Addiction and Drug Abuse, said the report is "a major scientific review of accumulated evidence to date on the effects of using marihuana, including data derived from laboratory, clinical, and epidemiological investigations. The National Institute of Mental Health is continuing its intensive marihuana research program to supply needed answers to the many questions still unresolved about this drug."

Among the research findings reported are:

—The safety margin with marihuana seems to be very high, based on animal studies and limited clinical observations in humans. Acute reactions to marihuana apparently are rare.

—Chemical constituents of cannabis (marihuana) are rapidly transformed by the body into metabolites, which remain for several days. The implications of this are unclear, although it is possible that the metabolites may effect later doses of cannabis or interact with other drugs in presently unknown ways.

—The most consistent physiological effects of marihuana continue to be an increase in pulse rate and a characteristic reddening of the eyes.

—Recent findings add to the contention that acute marihuana intoxication causes deficit intellectual performance and psychomoter skills, such as those used in operating a motor vehicle.

—Marihuana, unlike other drugs, may produce a "reverse tolerance" effect. Rather than needing increased quantities to produce the same "high," as is the case with other drugs, experienced marihuana users have frequently reported that they require smaller doses. The basis for this reverse tolerance has not been conclusively determined, although it may be related to the metabolism of the active ingredients and possibly the psychological processes of experienced users learning to notice drug effects.

—Preliminary findings in limited studies of long-term users in Greece and Jamaica have found a relative absence of debilitating physical effects in these persons. Larger scale epidemiological studies of chronic marihuana users are planned to follow up on this finding.

—Evidence of brain atrophy was reported in a British study of ten young marihuana smokers. The causal role of marihuana is unclear since the youths were multiple drug users and presented a variety of behavioral and neurological symptoms. This report also will be carefully followed up in future research.

—Little evidence of chromosomal abnormalities has been found in marihuana users in limited studies to date bearing on this question.

For a copy of **Marihuana and Health**, send a postcard to:

National Clearinghouse for
Drug Abuse Information
5600 Fishers Lane
Room 8-94
Rockville, Maryland 20852

Schoenfeld Authors Outdoor Guide

Everybody's Ecology: A Field Guide to Pleasure in the Out-of-Doors, by **Clay Schoenfeld**, is a "practical guide to pleasure and perception in the out-of-doors—pleasure in the simple values and rustic charms of outdoor recreation and in an ecological understanding of the great web of life; and perception of our beautiful yet threatened environment and of the individual practices and policies that can preserve and enhance our natural inheritance."

This volume uses the language of ecology to illuminate the enjoyment, appreciation, and conservation of natural processes, showing how the outdoors can be enjoyed to the maximum at the same time preserving the land, fields, and streams. It is about hunting and fishing, hiking and touring, camping and cabins, scenery and sewage, cityscape and countryside; it discusses citizens in action in environmental management.

Everybody's Ecology is published by A. S. Barnes and Company, New York.

Publications of Interest . . .

The seventh in its series of better environment educational cartoon books has been announced by the Soil Conservation Society of America.

Plants, How They Improve our Environment, explains how vegetation improves environmental quality by producing oxygen, preventing air pollution, reducing noise, and guarding against soil erosion. Designed for students in the elementary grades, the booklet encourages young people to plant flowers, shrubs and trees, in addition to presenting a number of do-it-yourself projects to help children better understand the function of plants in the environment.

Single copies of the 16-page booklet, released simultaneously by the Men's Garden Clubs of America, may be obtained for 25 cents from:

Soil Conservation Society of America
7515 Northeast Ankeny Road
Ankeny, Iowa 50021

Discounts on quantity purchases are available upon request.

The World Around Them: Environmental Education in the Urban Environment, is designed to provide urban teachers with materials which can be used to create student awareness and concern for urban environmental problems. Among topics are "A City Block—an Environmental Design," "The Streets of the City," and "Noise Pollution." Activities are written for intermediate grades.

This publication is available for $2.00 postpaid from:

Conservation and Environmental Studies Center
Whitesboro, New Jersey 08252

Air Pollution Publications: A Selected Bibliography with Abstracts 1966-1968, compiled by the Science and Technology Division, Library of Congress, for the National Air Pollution Control Administration, as Public Health Service Publication No. 979, is available from:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The 532-page paperback book is $4.50 a copy. Among topics considered are General Aspects of Air Pollution, Emission Sources, Atmospheric Interactions, Measurement, Control Methods, Biosciences and Medicine, Plants, Materials Deterioration, Air Quality, Legal and Administrative Aspects, Social Aspects, and Basic Science and Technology.

The National Cable Television Association and Environmental Action, Inc., have published an environmental action guide to cable TV which discusses possibilities of use of cable TV by environmental groups. **Eco-Vision** may be obtained for 50 cents from:

Environmental Action, Inc.
1346 Connecticut Avenue, N.W.
Washington, D.C. 20036

Environment and the Social Sciences: Perspectives and Applications, presents the social scientist's view of environmental problems needs and applications.

Explored are the major areas of studies of general environmental conditions, studies of special environmental settings, and studies of environmental decision making. This collection of research papers was edited by **Daniel H. Carson** and **Joachim F. Wohlwill,** and is available for $5.50 from:

American Psychological Association
1201 Seventeenth Street, N.W.
Washington, D.C. 20036

An English non-profit organization, The Simon Population Trust, has announced the publication of the **Bibliography of Family Planning and Population,** beginning in July 1972.

Issues will appear every two months. Each will have 30-60 pages, with 300-600 references and an author index. The purpose is to provide a regular and comprehensive guide to the world's literature on family planning and population, with additional possibility of reprints of some of the materials for research or private study.

Subscription rate is $18.00 for Volume 1, containing six issues from July 1972 through June 1973, along with a subject index. Persons interested should contact:

Simon Population Trust
141 Newmarket Road
Cambridge CB5 8HA
England

The federal government has published a comprehensive new guide to drug abuse materials for elementary and high school teachers. Entitled **Drug Abuse Prevention Materials for Schools, 1971,** the 47-page guide describes items for teachers of various grade levels, and includes pamphlets, fliers, films, and special materials for minority groups. Addresses of state lending libraries for films and other materials and a streamlined order form come with the guide. A copy may be obtained from:

The National Clearinghouse for Drug Abuse
Information
5600 Fishers Lane
Rockville, Maryland 20852

The Institute of Man and Science, a private, non-profit organization concerned with research and action programs and involved with the U.N. Conference on the Environment, has available two reprints of interest:

International Organization and the Human Environment, the proceedings of an international meeting in preparation for the Stockholm Conference, and

"Global Pollution," reprinted from the August 7, 1971, issue of **Saturday Review.**

Copies may be secured from:
The Institute of Man and Science
Rensselaerville, N.Y. 12147

Eastman Kodak Company has a new publication designed to help individuals and interested groups harness the power of photography as a tool in environmental-action projects. **Improve Your Environment . . . Fight Pollution With Pictures,** Customer Service Pamphlet No. AC-26, shows actual projects successfully completed by the use of pictures. The 56-page, 8½ x 11-inch pamphlet, which has a list price of $1, is available from photographic dealers or directly from Kodak.

Projects detailed by the new publication fall generally into the categories of pollution abatement, conservation of wildlife and natural areas, and beautification. The book is based upon the experience of pictures of over 100 different organizations engaged in ecological projects. It has more than 250 color and black and white environmental photographs.

Independent Foundation Lists Grants

The **Independent Foundation,** founded by former Peace Corps and VISTA volunteers, is a private, non-profit organization registered in Washington, D.C.

This organization acts as a resource catalyst for funding programs in the areas of Youth Development, Human Relations, Education and Environment. The major individual contributors are former Peace Corps and VISTA volunteers whose response has resulted in generating grants from several private organizations and foundations.

Recently, **Grady E. Poulard** was named the Foundation's new director. Formerly Mr. Poulard was Administrator of the American Institute of Architects' Department of Community Services.

Initiated in December 1969, the Foundation began by providing seed grants and technical assistance in support of community programs. The first year, the Foundation awarded grants totaling $27,000 and also helped other groups find sources of funding.

In January of this year, the Foundation announced that it had received a $25,000 grant specifically earmarked for hiring a minority group representative as permanent executive director. In addition, the Foundation received $15,512 from the National Endowment for the Arts to support community arts programs.

The following are projects the Independent Foundation has been able to support.

The Knoxville School Corporation (Knoxville, Tennessee) was organized in 1968 by a group of parents who were interested in providing an alternative to public school education to children from a variety of ethnic and economic backgrounds. The Foundation provided a $1,000 grant for tuition scholarships for children of low income families. Through the Foundation's efforts, another foundation provided a $1,000 matching grant.

The Foundation recently made its first grant ($1,150.00) using funds received from the National Endowment for the Arts to the **Sign of the Times** cultural workshop (Washington, D.C.).

The United Methodist Church (Seat Pleasant, Maryland) received a grant of $1,500 to provide support for the **Prince George's County Free Clinic.** Run by former volunteers and interested persons from the community's medical profession, the clinic provides out-patient counseling, treatment and referral services in such areas as drug abuse, pregnancy, venereal disease, legal questions and the draft.

The Hispanic International University (Houston, Texas) received its first grant from the Foundation. The University was planned by Mexican-Americans and it is being implemented by them. The University will provide relevant higher education with emphasis on the needs of Mexican-American students. Since the $1,000 grant, the University has received additional grants from various sources, and Antioch College has provided staff support. Leonel Castillo is Chairman of their Board of Trustees. The University expects to double the number of Mexican-Americans with a Masters of Education in Houston when they graduate five of their students. They will be credited by Antioch College.

Since **Environmental Resources, Inc.** (Washington, D.C.) had not received its tax exempt certificate, the Foundation agreed to sponsor their Occupational Health and Safety Program. This program utilized the resources of union members, students and medical schools to educate communities about physical and environmental hazards present in the U.S.

The **National VISTA Alliance** (Washington, D.C.) received a $500 grant to cover the cost of their legal assistance incurred during their initial stages of operations.

The United Tribes of North Dakota Development Corporation sought the Foundation's help in their attempt to secure funds to develop an American Indian social studies curriculum for all public schools in North Dakota. The Foundation has helped them obtain a seed grant of $12,000 and has arranged numerous appointments with government agencies and foundations. It now appears likely that the United Tribes will receive the necessary funding to develop this program, which will make North Dakota the leader in the area of Indian participation in the development of public school curriculum.

The Martin Luther King, Jr. Education Fund (Atlanta, Georgia) was established by current and former Peace Corps staff and volunteers following the slaying of Dr. King in April 1968. The Independent Foundation has assumed the administration on a no fee basis of this fund and contributed $1,200. The Fund has supported the Martin Luther King, Jr. Memorial Scholarship Fund, and the Martin Luther King Memorial Center.

Project Youth Involvement (Washington, D.C.), a program of Education for Involvement Corporation, received a grant of $2,139 from the Foundation for a pilot training program for area youth interested in working in community change programs. As a result of the training sessions and subsequent involvement in their communities, the participants provided the impetus for a summer program, "Project Involve," a social and environmental action support system capable of serving all interested youth in the Washington D.C. Metropolitan Area. The Foundation assisted EIC in obtaining a $15,000 grant from a major foundation for "Project Involve." EIC is now concentrating the development of a program primarily aimed at college level youth.

Stanford Course Draws Large Response

Stanford University students in Palo Alto, California, have reacted enthusiastically to a new program in Human Biology—the university's answer to an increased demand for environmental studies. More than 400 students wanted to enroll in the program's first course, "Man and Nature." This was twice the total expected by the program's faculty-student planning committee.

In addition to dealing with fundamentals of the biological and behavioral sciences during the program's first two years, students consider societal-related questions. Advanced study in the program will depend on what each student wants to pursue, with an overall focus stressing a biological and social balance.

A $1,936,000 Ford Foundation grant established the program and will support it for the first six years.

* * * * * * * * * * * * *

According to figures released by the U.S. Census Bureau, nearly 75 percent of the population of the United States lived on 1.5 percent of the nation's land in 1970.

The bureau indicated that 149.3 million of the 203.2 million persons counted in the 1970 census lived in urban areas, comprising a total of 54,103 square miles.

Total land area of the United States is 3,536,855 square miles.

SMEAC

Dr. Robert W. Howe
Director

Dr. Stanley L. Helgeson
Associate Director
Science Education

Dr. Jon L. Higgins
Associate Director
Mathematics Education

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**ERIC Information Analysis Center
for Science, Mathematics, and
Environmental Education
1460 West Lane Avenue
Columbus, Ohio 43210**

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1240—RF-2228
Environmental Education - Volume 2, Number 7, 1971-72

SMEAC

ERIC

Research Review, Directory Published; APEX Manuals Available

RESEARCH REVIEW PUBLISHED

A Review of Research Related to Environmental Education by Robert E. Roth and Stanley L. Helgeson of ERIC/SMEAC identifies and reviews 87 studies having relevance to environmental education. The majority of these studies, reported 1950-1970, were oriented toward outdoor or conservation education, thus being forerunners of environmental education as it is currently viewed.

The 50-page review is available from:

Center for Science and Mathematics Education
Room 244 Arps Hall
The Ohio State University
Columbus, Ohio 43210

Single copies are priced at $1.50. A ten per cent discount is offered on ten or more copies to the same address.

PROJECT DIRECTORY AVAILABLE

More than 200 environmental education projects and programs are described in another SMEAC publication, **A Directory of Projects in Environmental Education for Elementary and Secondary Schools**, compiled by John F. Disinger. This publication, priced at $6.00 per copy with a ten per cent discount for more than ten copies, is also available from the Center for Science and Mathematics Education at Ohio State.

Primary criterion for inclusion was recommendation by the appropriate member of SMEAC's state coordinator group. Information was derived from questionnaires sent to each project director.

PL 91-516 AWARDS ANNOUNCED

A listing of projects selected for funding under PL 91-516, the Environmental Education Act, during 1972-73 is available at $.50 per copy from the Center for Science and Mathematics Education. Included among the 162 grants totaling $2,999,040 were eleven for statewide evaluation and dissemination, in Alabama, Colorado, District of Columbia, Hawaii, Massachusetts, Michigan, Minnesota, New Hampshire, North Carolina, Texas, and Wisconsin.

WHITE HOUSE REQUESTS E. E. REVIEW

At the request of the White House, the NCEC Educational Reference Center recently provided an advance copy of the three-volume research study, **Review of Environmental Education,** to Caspar Weinberger, director of the Office of Management and Budget. The study was developed jointly by ERIC/SMEAC and ERIC/ChESS, under direction of Dr. Stanley L. Helgeson and Dr. Nicholas Helburn, and is available as ED 059 913, ED 059 914, and ED 059 915, from EDRS. PREP Report No. 33, described below, was adapted from the three targeted communications documents.

G.P.O. PUBLISHES PREP REPORT

PREP (Putting Research into Educational Practice) Report 33, **Environmental Education Programs and Materials,** has been adapted from the three target communications reports on environmental education developed jointly by ERIC/SMEAC and ERIC/ChESS and announced in Vol. 2, No. 7, of this **Newsletter.** It is now available at one dollar per copy, with 25 per cent discount for 100 or more copies to the same address, from:

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

For foreign mailing, 25 per cent should be added to the net price.

Prep Report No. 33 is also available from EDRS at $.65 (microfiche) or $6.58 (hardcopy), as ED 062 582.

The Office of Education, in cooperation with USGPO, has discontinued annual subscriptions to the PREP series. Beginning with PREP No. 33, the prices for individual PREP reports will vary according to the length of the report.

APEX MANUALS AVAILABLE THROUGH EDRS

Manuals for the Environmental Protection Agency's computer simulation APEX (Air Pollution Exercise) are now available through ERIC Document Reproduction Service as a result of an arrangement made between ERIC/SMEAC and the Institute for Air Pollution Training, Office of Manpower Development, EPA.

APEX is a college and professional-level "real world" simulation of a community with somewhat typical problems politically, financially, industrially, and with respect to air pollution. Participants, ranging in number from 18 to 75, each assume roles which require interaction prior to decision-making. Participant decisions are coded and fed into a computerized system of integrated simulation models which provides an analysis and background data for another decision-making round, or cycle. Each cycle represents one year; any number of cycles may be played, but three is considered minimal, and five to ten optimal. At least three hours of playing time are required for each cycle.

Previously, copies of the manual were available only through EPA or from the University of Michigan's Environmental Simulation Laboratory, which developed APEX under contract from EPA. Decision to facilitate availability of manuals through EDRS came as an attempt to relieve EPA and University of Michigan of the burden of distribution.

The APEX computer program, which is **not** available through EDRS, is in Fortran IV and runs on an IBM 1130-2B computer or an IBM 360-50 or higher series computer. Full information concerning training of game operators and availability of computer tapes may be secured from:

(Continued on page 2)

SE 017 938

(continued from page 1)

Institute for Air Pollution Training
Office of Air Programs
Environmental Protection Agency
Research Triangle Park, North Carolina 27711

The manuals will be described more fully in **Research in Education** for November 1972. Each is available for 65 cents in microfiche, or $3.29 in hard copy, except for Volume 2, which costs $6.58 in hard copy. However, orders may be placed now, under the following ED numbers:

ED 064 530—Volume 1, Game Director's Manual
ED 064 531—Volume 2, Computer Operator's Manual for IBM 1130
ED 064 532—Volume 3, Air Pollution Control Officer's Manual
ED 064 533—Volume 4, City Politicians' Manual
ED 064 534—Volume 5, County Politicians' Manual
ED 064 535—Volume 6, Industrialist 1
ED 064 536—Volume 7, Industrialist 2
ED 064 537—Volume 8, Industrialist 3
ED 064 538—Volume 9, Industrialist 5
ED 064 539—Volume 10, Industrialist 6
ED 064 540—Volume 11, Developer 1
ED 064 541—Volume 12, Developer 2
ED 064 542—Volume 13, Developer 3
ED 064 543—Volume 14, Developer 4
ED 064 544—Volume 15, Developer 5
ED 064 545—Volume 16, Developer 6
ED 064 546—Volume 17, Developer 7
ED 064 547—Volume 18, City Planners' Manual
ED 064 548—Volume 19, County Planners' Manual
ED 065 549—Volume 20, Reference Materials
ED 065 550—Volume 21, Legal References—Air Pollution Control Regulations

Bogan Named USOE(EE) Head

Walter J. Bogan Jr., former executive director of the Scientists' Institute for Public Information in New York City, has been appointed director of the Office of Environmental Education in HEW's Office of Education. Bogan replaced **Dr. Robert Gilkey**, who left the post in May.

While serving as executive director of the Scientists' Institute for Public Information, Bogan was also an instructor of science and public policy in the "Science for the Citizen" program at the New School for Social Research in New York City.

He recently returned from Stockholm, Sweden, where he was chairman of the executive committee of the United Nations non-governmental organizations participating in the UN Conference on the Human Environment.

Bogan was chairman of the science department of the Elizabeth Irwin High School in New York City from 1964 to 1967. He taught science in the New York City Public Schools from 1962 to 1964.

He received his bachelor's degree in chemistry from Lincoln University, Chester County, Pa., and his master's degree in science education from Columbia University in 1965.

He is a member of the Advisory Committee of the U.S. Commission for the United Nations Educational, Scientific, and Cultural Organization. He is also a member of the Board of Directors, the Executive Committee, and the Committee on Scientific Activities of the National Audubon Society, and a member of the Advisory Committee on Air Quality of the Conservation Foundation. He is a native of Savannah, Georgia.

UNESCO Group Plans Courtroom Format

A courtroom format has been devised for the Sixteenth Conference of the United States National Commission for UNESCO, using as a theme "The Environment: Man on Trial." The conference is scheduled for November 19-22 in Houston.

Major emphases will center on:

The Quantity of Life vs. The Quality of Life;
Population;
Institutions on Trial; and
Stockholm '72—World on Trial.

In addition, a special session featuring press correspondents who covered the UN World Conference on the Human Environment in Stockholm this past June has been announced.

Admission to the conference is by invitation from the National Commission; attendance is limited to 450. Conference chairman is the **Rev. Laurence T. Murphy**, and regional coordinator is **Mrs. Alice Reynolds Pratt**, director of the Southwest Region of the Institute of International Education.

Education For Changed Life Style Called For

Sir Garfield Barwick, vice-president of the Australian Conservation Foundation, recently told a group of 140 technical college headmasters meeting in New South Wales that they would have to introduce not only new concepts in technology but also prepare their pupils to accept and work for an entirely new life-style.

"The days of innocence have passed," he said, "and you must guide the new generation to develop a new technology that will be more 'natural' and can sustain society without destruction of either the biosphere or of Man himself."

Barwick told the teachers that to defer any longer the general presentation of environmental studies to pupils at all levels could only exacerbate the current unsatisfactory, even dangerous, situation.

"For their own sakes," he said, "we simply cannot afford to let this generation of children grow up in the same state of ignorance about the environment as their parents." Noting that almost all efforts in the past to teach conservation have failed, he suggested that this indicated that unsatisfactory methods had been used.

He said: "Any ten-year-old becomes utterly absorbed in a pond which most grownups can see only as a mudhole. There seems little doubt that children are born turned on to nature. But, somewhere, somehow—I suspect the process begins in the middle school—we turn our youngsters off. I do not mean to criticize our hard-pressed teachers, but I feel that they need to look again at their methods of presenting nature to the students and to seek whatever help is available."

He said he hoped other sections of the community would not let the teachers down by failing to make their appropriate contributions to conservation.

Dr. Hill Retires from USOE

Dr. Wilhelmina Hill, after 24 years of service in the U.S. Office of Education, retired from that office on June 30. Her plans include travel in foreign countries and consultant work in environmental education. She will continue writing and editorial activities at her residence at 4000 Cathedral Avenue, Washington, D.C. 20016.

STEP UNDERWAY IN ATLANTA

A grassroots youth movement called **Students Toward Environmental Participation** (STEP) is underway in Atlanta. So impressed has been the U.S. National Commission for UNESCO by this new organization that it believes STEP might serve as a model for a wider network of students committed to solving environmental problems, perhaps worldwide.

STEP was a direct spin-off from the third regional conference on "Man and the Environment" sponsored by the U.S. National Commission in Atlanta in November 1971. About 40 high school students attended, and responded to what they heard there by asking, "Yes, but what can we do about the environment?" In answer to their own question, they invented STEP.

Provided support by the staff of the Kennesaw Mountain National Battlefield Park and the Atlanta Schools' Environmental Education Project, the project prospered and the word spread. When STEP participants in Atlanta decided to hold a "mini-conference" May 12 and 13, 1972, to further the program, they expected an attendance of some 200 ecology-minded students from the metropolitan area. Instead, registration pushed 500. Of these half traveled more than 50 miles to attend. Students as far away as Florida and Pennsylvania heard about it and requested invitation.

In response to the level of interest expressed, ten student founders asked the Commission to sponsor the STEP program nationwide. After due deliberation, the Commission agreed. It is now exploring just how to bring this about in the U.S., as well as abroad. Among ideas to emerge is the establishment of an international student exchange program between schools and communities committed to solving the environmental problems.

Students and teachers interested in learning more about the Atlanta STEP program are encouraged to write:

Mrs. Rubie Schuster
Secretariat
U.S. National Commission for UNESCO
Department of State
Washington, DC 20520

According to a recent report from Mrs. Schuster, the U.S. National Commission has reached an agreement with the National Park Service for co-sponsorship of the STEP program nationwide; this is currently in the planning stages. Also, the U.S. Commission is coordinating with national commissions abroad toward the involvement of other nations. "It is our hope that STEP will become a central communication and coordinating thread on which can be strung existing students' environmental programs, as well as new programs as STEP develops," Mrs. Schuster noted.

IUCN Sponsors International Workshop

The International Union for the Conservation of Nature and Natural Resources, in cooperation with the World Wildlife Fund, sponsored an International Workshop on Environmental Studies in Higher Education and Teacher Training at Althouse College of Education, University of Western Ontario, London, September 5-7, 1972. The meeting was hosted by **Dr. Paul Park** of Althouse College.

Twenty-seven countries were represented and actively participated in seven workshop sessions dealing with preservice and inservice teacher education, undergraduate environmental programs, and environmental education in professional fields. The conference was designed to provide each participant with an up-to-date, relevant picture of active international developments in these fields at the present. **Dr. J. Cerovsky,** executive education officer of IUCN, assisted with coordination of the work sessions.

Case studies of programs were presented by panelists from Canada, U.S.S.R., Poland, and the United Kingdom. Key addresses were presented by The Honorable Senator **Andrew Thompson** of Canada and **Dr. Gerardo Budowski,** director general of IUCN.

ERIC/SMEAC was represented at this conference by Robert W. Howe and Robert E. Roth.

NARST Receives Recommendations

Three recommendations to the Executive Board of the **National Association for Research in Science Teaching** were presented by the association's Committee on Environmental Education at the annual meeting in April 1972 in Chicago. They were:

1. It is recommended that any or all of the following be developed by the committee within two years or less:
    a. Recruit members to assist in designing guidelines for the role of environmental education in elementary schools, secondary schools, and colleges.
    b. Determine what studies or surveys are available that indicate what environmental science is being taught in the schools and colleges.
    c. Suggest to graduate students the need for such studies or obtain NARST members who are willing to conduct such surveys or studies as members of subcommittees.
2. The findings of this committee should either be published in **Journal of Research in Science Teaching,** or as a monograph issued by NARST, or recommended publisher.
3. The Executive Board should indicate which of the above items should be the concern of the committee if it is to remain and function.

Bureau of Land Management Works in Environmental Education

Few educators recognize that the Bureau of Land Management, U. S. Department of Interior, is getting involved with environmental education. The Division of Environmental and Planning Coordination has supervised summer pilot projects in Billings, Montana; Casper, Wyoming; and Boise, Idaho.

Summer employees also put together an environmental study guide for 3rd—8th graders entitled **All Around You.** This publication was considered a trial guide to be evaluated and rewritten. Because of the acceptance and satisfaction, however, it is now available through the Government Printing Office for $1.50. (Stock #2711-0035).

Summer employees this year worked on three smaller publications directed to BLM employees rather than to teachers in general. The major goal for the summer of 1972, however, was to determine exactly what kind of environmental education program BLM wants to develop. When this is decided, things will progress faster and with more structure, reports **Joan E. Martin,** Division of Environmental and Planning Coordination, Bureau of Land Management.

RIE Lists E.E. Documents

Among documents of potential interest to environmental educators abstracted in recents issues of **Research in Education** are:

Environment and Public Opinion in Minnesota, by P. J. Tichenor, et al., ED 060 412, 18 pages, a report of surveys conducted in Minnesota in 1969 and 1970 to obtain public opinion regarding environmental issues;

Environmental Education Resource Catalog, Phoenix, Ariz., Union High School, ED 061 030, 96 pages, a catalog providing information about environmental education materials which will aid in classroom presentations and in curriculum development;

Twelve Major Concept Categories and Their Rationale, by George Howlett, ED 061 031, 16 pages, an elaboration of the concepts utilized by Project I-C-E, Green Bay, Wis., for integrating science, social studies, and language arts with environmental studies;

Environmental Involvement, Sources of Information (Including Directories and Lists) on Organizations, Institutions, Agencies, Groups, Etc., Concerned with Environmental Affairs, by John Dinsmore, University of Wisconsin—Green Bay, ED 061 050, 16 pages, sources of information for environmental involvement, presented both as a reference work and as a demonstration of the variety of sources which are available;

Man: Planetary Disease, The 1971 B.Y. Morrison Memorial Lecture, by Ian L. McHarg, noted landscape architect, planner and lecturer, ED 061 052, 33 pages;

Environmental Awakening-President's Third Annual Environmental Message to Congress, 9 February 1972, by Richard M. Nixon, ED 061 053, 6 pages, stressing the need for decisive action by the Congress to adopt and implement measures that would strengthen present programs, control emerging problems and promote overall environmental quality;

Children's Ecology Books, ED 061 054, 24 pages, an annotated bibliography, by Martha Lussenhop, of children's books, fiction and non-fiction, which add to an understanding of ecology;

Nitrate Water Activities, Science Study Aid No. 4, from Agricultural Research Service, Department of Agriculture, ED 061 058, 12 pages, a pamphlet providing background information, related activities, and suggestions for other activities on the subject of nitrate as a water pollutant;

Dune Detective, Using Ecological Studies to Reconstruct Events Which Shaped a Barrier Island, by Paul J. Godfrey and Will Hon, ED 061 060, 34 pages, designed for use as part of a curriculum series developed by the Regional Marine Science Project; students in grades 11 and 12 are exposed to research methods through field exercises guiding investigators in reconstructing the events which shaped the natural communities of a barrier beach;

The Case for Environmental Education and **Understanding Environmental Education,** two collections of readings in environmental awareness compiled by the U.S. Office of Education, ED 061 066, 53 pages, and ED 061 067, 70 pages, respectively; among those whose excerpts, statements, testimony, and personal philosophies are presented are President Nixon, Prince Phillip, George Harrar, Richard Baer, Nathan Cabot Hale, Morton Leeds, Rene Dubos, Lewis Mumford, Michael Lacey, Roland Clemerst, Clay Schoenfeld, and Coleman McCarthy;

An Environmentally Related Program for the First Grade, by Angelyn K. Shafer, ED 061 118, 34 pages, a narrative description of the author's participation in an environmental education program, intended to provide first grade teachers with ideas for incorporating multi-disciplinary environmental education into the existing curriculum.

The above selection is presented here as a representative one; there is no intention of implying completeness or superiority of quality. Each of these documents, along with numerous others, is described more fully in **RIE.** All are available in microfiche or hard copy from:

ERIC Document Reproduction Service
Leasco Information Products, Inc.
P. O. Drawer 0
Bethesda, Maryland 20014

Microfiche cost is 65 cents per document, and hard copies $3.29 per document, up to 100 pages. Many of those described above are also available at lower cost from the original source.

More complete EDRS ordering information may be secured from the address above, from **Research in Education,** from back issues of this and other SMEAC newsletters, and from various "How to Use ERIC . . ." publications.

Three Symposia Set

A National Symposium on Methods of Learning Environmental Science, sponsored by Illinois Earth Science Association, is being held November 4, 1972, in Chicago. Six concurrent sessions covering 57 papers presented by high school teachers and students, junior college and university teachers, project directors, and scientists will be presented. Also planned are tips on innovative methods, workshops and discussion of new projects.

Chairman of the symposium is **Dr. Musa Qutub,** Northeastern Illinois University.

Dr. Qutub also will serve as chairman of Illinois Earth Science Association's second annual **National Symposium on Societal Problems of Water Resources,** in Chicago April 28, 1973. Papers will be open to workers in the various fields of water resources and applications to societal problems. Special consideration will be given to papers discussing newer techniques used in solving water resources problems, surface and subsurface; participation by industry, faculty and students from the social sciences is welcomed.

Abstracts must be submitted by March 15.

A National Symposium on the Future Status of Earth Resources in Society, sponsored by National Association of Geology Teachers, Central Section, will be chaired by Dr. Qutub, March 23-25, 1973. Abstracts for papers are invited to promote public understanding of the status of current and new mineral and energy resources and its impact on society through innovative studies and programs. Consideration will be given papers describing newer techniques used in locating earth resources; participation by industry and students is encouraged. Abstracts must be submitted by January 15.

All three symposia are scheduled for Regency Hyatt House, O'Hare International Airport, Chicago. Further information concerning each is available from:

Dr. Musa Qutub
Department of Earth Sciences
Northeastern Illinois University
Bryn Mawr at St. Louis Ave.
Chicago, Illinois 60625

UN Conference on Human Environment Makes Statement of Principles

The ERIC Center for Science, Mathematics, and Environmental Education was represented at the Conference on the Human Environment in Stockholm, Sweden, in June by **Dr. Robert E. Roth**, Associate Director for Environmental Education. As an observer he collected position papers and supportive statements for use by environmental educators, researchers, and practitioners in the United States; they are currently being processed through the ERIC system. A brief report of the conference follows:

The Agreements

Delegates from 114 nations voted at the Stockholm meetings to adopt the agreements summarized below. Next step will be their submission for ratification to the United Nations General Assembly this fall.

The Action Program includes some 200 recommendations in fields ranging from monitoring climate change or oceanic pollution to preservation of endangered species of plants and animals. Among them are:

- To set up an "Earthwatch" to measure ecological changes through a worldwide network of monitoring stations. It would include ten baseline stations in areas remote from pollution sources (for example, the Sahara and the Amazon jungle) to monitor long-term trends which may ultimately indicate changes in climate. In addition, a regional system of 100 stations to check air quality in both advanced and developing countries is proposed, as are water-borne stations to measure contaminants in major rivers, lakes and seas, and research centers and biological stations to analyze changing soil conditions and changes in plant and animal life. The Earthwatch program also provides that food contamination by chemical and biological agents be monitored. The conference also recommended that nations advise each other when considering actions which may harm the environment.
- To establish a network of national and regional "banks" to safeguard the world's genetic resources.
- To establish a ten-year moratorium on commercial whaling.
- To work toward completing this year a world convention to restrict ocean dumping.
- To set up an international clearinghouse for exchange of information on techniques of environmental control.
- To prevent national environmental programs from creating trade barriers to exports of developing countries.
- To give higher priority in development assistance to environmental values—land use, conservation, and quality of human settlements.
- To increase the emphasis upon population policy and planning.

A New UN Environmental Agency

The conference voted to organize permanent UN administrative machinery to coordinate environmental programs among the UN and its specialized agencies; to review their implementation and assess their effectiveness; **to go outside the UN to solicit the cooperation and contributions of scientific and other professional communities;** to provide advisory services . . . for the promotion of international cooperation in environmental matters; to empower the executive director to lay before the 54-nation governing council any matter he thinks requires its attention; to administer the environment fund—money pledged to the new agency for administering new UN environmental initiatives, the Earthwatch, for instance. (Pledges at the conference did not reach the $100 million considered a minimum for the first five years although some nations did make pledges—the United States, $40 million—and it is expected the goal will be met.)

A nucleus for the new environmental agency exists in the top level of the conference secretariat which continues in office until the UN General Assembly chooses the permanent staff. Maurice Strong of Canada, conference secretary-general, is considered a likely choice for executive director.

The Statement of Principles

The 26 principles represent guidelines for national performance in the various areas covered by specific recommendations. They cover man's right to "an environment of a quality to permit a life of dignity" and to produce renewable resources, and protect nonrenewable resources; the necessity to halt discharges of toxic substances and excessive heat in quantities which overload the capacity of the environment in order to avoid "serious or irreversible damage" to ecosystems.

About five of the principles contained in the statement refer specifically to the problems of developing nations. Essentially, they take the position that (1) underdevelopment is itself an environmental problem and the nations should transfer technological and financial aid to them to supplement their own efforts, (2) that the poorer countries need stable prices and adequate earning to pay for the economic costs of environmental control, (3) that the nations need to agree on the possible national and international economic consequences of applying environmental standards, transferring extra financial aid to developing countries, if they ask for it, to pay the costs of incorporating environmental safeguards in their development plans, (4) all nations should be sensitive to national systems of values and recognize that developing countries may in some cases find that environmental standards are not valid for them—that the social cost is too high, and (5) rational planning is "an essential tool" in reconciling any conflict between development needs and environmental needs.

Other principles deal with demographic policies, with science and technology—which must be applied to questions of environmental risks and how to avoid them, with the need for promoting scientific research in developing countries and seeing to it that the research results are disseminated widely.

The final principle states that "man and his environment must be spared the effect of nuclear weapons and all other means of mass destruction. States must strive to reach prompt agreement, in the relevant international organs, on the elimination and complete destruction of such weapons."

WHO'S GOT THE WEALTH?

In the century following 1860, the share (of world income) of the quarter of the world's population living in the world's richest countries increased from 58 percent to 72 percent; the share of the next richest quarter rose from 15.5 percent to 19 percent; the share of the next quarter fell from 14 to 7 percent, and the share of the quarter of the population living in the poorest countries dropped from 12.5 percent to a mere 3.0 percent.

from

Economic Development
by Benjamin Higgins
(noted in *New World)*

What Is Environmental Education?

"Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among Man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulation of a code of behavior about issues concerning environmental quality."

UNESCO

SMEAC E. E. STAFF ADDS ONE

Dr. John H. Wheatley, a June 1972 Ph.D. graduate in science education from The Ohio State University, has joined ERIC/SMEAC's environmental education staff as a research associate. He also holds an appointment as assistant professor of environmental education in Ohio State's School of Natural Resources.

The addition of Dr. Wheatley brings to four the number of permanent staff in environmental education at SMEAC. The others are Dr. Robert E. Roth, Dr. John F. Disinger, and Mrs. Beverly M. Lee.

SMEAC

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Director

Dr. Stanley L. Helgeson
Associate Director
Science Education

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Research Associate
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Environmental Education

Dr. Jon L. Higgins
Associate Director
Mathematics Education

Dr. F. Joe Crosswhite
Research Associate
Mathematics Education

Dr. Marilyn N. Suydam
Research Associate
Mathematics Education

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Earth Week—April 17-23

Material for this special "Earth Week" issue of the **Environmental Education Newsletter** has been prepared by the U.S. Office of Environmental Education, Washington, D.C. as a product of a cooperative agreement between that office and ERIC/SMEAC. **Mrs. Joan M. Nicholson** of USOE (EE) has served as guest editor.

In behalf of Earth Week, 69 U.S. Senators are supporting an **Earth Week** resolution prepared by national leaders of environmental organizations. It is anticipated that the President will again proclaim Earth Week, as will more than 45 Governors and hundreds of Mayors.

Last year, Earth Week proved a nationwide success. Thousands of students, throughout the formal education system participated in special projects, focusing on the problems of pollution, life support systems, outdoor education and conservation projects.

In its short three-year history, the annual recognition of Earth Week has become a national point of focus for the high level of widespread activity relating to the welfare of the environment. However, the level of involvement in the environment must be sustained over a matter of decades.

The **Earth Week Resolution** states, "We believe Earth Week should be established as a continuing educational effort, a time each year to renew the nation's environmental awareness, and for local environmental inventories and reviews as well as special public and media reports.".

The **Resolution** "strongly encourages the support and participation in Earth Week of our schools, communities, churches, public leaders and citizen groups and all interests including business, labor and government."

The staff of the Office of Environmental Education, U.S. Office of Education, Washington, D.C., is constantly discovering new materials, information and programs which may prove of great use to teachers, students and the general public.

In response to Earth Week, the Office of Environmental Education has available free upon request some very helpful annotated bibliographies for preschool-3, 4-6, 7-9, and 10-14. These bibliographies have been prepared by the Massachusetts Audubon Society.

1. **A Collection of Experiences, Resources, ahd Suggested Activities: Our Man-Made Environment,** prepared by and available through the:
   Group for Environmental Education, Inc.
   1214 Arch Street
   Philadelphia, Pennsylvania 19107
   Target: the elementary and secondary classroom, inside and outside.
2. **The Quest for Environmental Quality-Federal and State Action 1969-70,** an annotated bibliography prepared by the Advisory Commission on Intergovernmental Relations, Washington, D.C. 20575, April 1971. It is available from the:
   Superintendent of Documents
   Government Printing Office
   Washington, D.C. 20402
   Price: 35c. It would serve secondary and post-secondary needs, as well as those of public officials.
3. **Environment and the Community,** an annotated bibliography, U.S. Department of Housing and Urban Development, Washington, D.C., April 1971, available for 65c from:
   Superintendent of Documents
   Government Printing Office
   Washington, D.C. 20402

Another valuable source is **A Survival Guide to Environmental Education,** the October 1971 issue of **Scholastic Teacher,** Junior/Senior High Teacher's Edition. If you do not have access to this publication, it is published by Scholastic Magazines, Inc. Subscription information is available from:

Scholastic Teacher
902 Sylvan Avenue
Englewood Cliffs, New Jersey 07632.

In addition, the following materials might be of special interest to you in preparation for Earth Week as these materials are selected examples of process education—defined most simply as "learning by doing."

1. **A Curriculum Activities Guide to Water Pollution and Environmental Studies,** prepared in workshops at the Tilton School, New Hampshire. Target: secondary school. Available now for $15 from the:
   Institute for Environmental Education
   2803 Scarborough Road
   Cleveland Heights, Ohio 44118
2. **Adventure in Environment,** National Environmental Education Development (NEED), prepared as a National Park Foundation program produced with the National Park Service. Target: elementary. Available through:
   Silver Burdett Publishers
   Attention, Mr. Sherman Swanson
   250 James Street
   Morristown, New Jersey 07960
   Approximate cost: $3.25.

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3. **Geography in an Urban Age,** prepared by the High School Geography Project of the Association of American Geographers, 1970. Target: secondary social studies, history, civics. Available through:
   MacMillan Company
   School Division
   866 Third Avenue
   New York, New York 10022
4. **Our Man-Made Environment—Book Seven,** prepared by the Group for Environmental Education, Philadelphia, Pennsylvania. Target: Elementary+. Available from:
   M.I.T. Press
   28 Carleton Street
   Cambridge, Massachusetts 02142
   Price: $4.95.
5. **Teaching Materials for Environmental Education,** Forest Service, U.S. Department of Agriculture. Target: secondary, post-secondary, resource people, including teachers. For information contact:
   Chief of Environmental Education
   Division of Information and Education
   Forest Service, South Agriculture Building
   12th and Independence Avenues, S.W.
   Washington, D.C. 20250
   Materials are being up-dated. Single copies available free to teachers and schools. Inquire about bulk orders.
6. **Environmental Experiments Program.** Target: secondary, college and university, and professionals. Information:
   James E. Ogul
   Information and Exhibits Division
   Oak Ridge Associated Universities
   P.O. Box 117
   Oak Ridge, Tennessee 37830
   Telephone: 615-483-8411, Ext. 205.

Earth Week provides an opportunity for all educators and the general public to consider how special education programs, such as remedial reading, adult education, career and vocational education, drug education and education for the handicapped, might include environmental concepts in such specialized curriculum.

The Office of Environmental Education encourages educators to also review the incorporation of multidisciplinary, process education designs in support of environmental education.

Earth Week, indeed, should be defined as an educational renewal effort in support of a national environmental literacy needed to protect our environment—"classroom earth."

SUPPORTING ORGANIZATIONS

U.S. Senator Gaylord Nelson
Citizens Committee on Natural Resources
Defenders of Wildlife
Environmental Action, Inc.
The Izaak Walton League of America
National Audubon Society
National Recreation and Parks Association
National Wildlife Federation
Sierra Club
The Wilderness Society
American Federation of Teaching
The Conservation Foundation

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Ecology Center Communications Council
Friends of the Earth
League of Conservation Voters
National Parks and Conservation Association
National Education Association
The Population Institute
Washington Ecology Center
Zero Population Growth

SENATE

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(Continued on page 3)

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ECOLOGY FORUM OFFERS DISCOUNTS TO PEMAP PARTICIPANTS

Ecology Forum, Inc., of New York City has announced that schools participating in the Environmental Protection Agency President's Environmental Merit Awards Program (PEMAP) are eligible for significant discounts on two publications of use as environmental references, both for student projects and for general use in classroom and library.

The publications are **Environment Information Access**, having a regular price of $150 per year's subscription, and **Environment Index**, normally priced at $75. Only one copy of the **Index**, and one subscription to **Access** are available per school at discount.

Access, published twice monthly, serves as an abstract journal, an environmental index, and a library system. Covering 21 major areas of environmental affairs, it searches 1000 periodicals, reports, documents, and books. Each issue contains 300-400 citations.

Environment Index, a desk-library reference, is an annual 600-page summary containing 42,000 citations, in addition to patent coverage, legislative highlights, and other pertinent information.

Further information concerning the discounts is available to PEMAP project directors, upon school enrollment in the program. Approximately 2,000 schools are currently eligible. Schools interested should contact:

Arthur W. Peters, National Coordinator
President's Environmental Merit Awards Program
U.S. Environmental Protection Agency
Washington, D.C. 20460

Federal-State Relationships Explored at Tucson Meeting

The second conference evolving from the Western Regional Environmental Education Project, funded by a U.S. Office of Education, Title V, Section 505, ESEA Act, was held in Tucson, Arizona in January. **Rudolph J. H. Schafer**, Project Director, a consultant to the California State Department of Education on Environmental Education, and **Dr. David Phillips**, Division of State Agencies Cooperation of U.S. Office of Education, coordinated the conference.

The two-day program included briefing sessions, dialogues and a presentation by the Sonora Desert Museum. The primary concerns of the conference were the relationships between federal and state programs, and sources of federal funding for environmental education. State department of education officials responsible for environmental education and officials from state resource management and support agencies joined in their review of those possibilities for federal support.

Speakers from Washington, D.C., addressing the role of federal support included **Dr. Robert Gilkey**, Office of Environmental Education, USOE, **Robert Cahn**, Council on Environmental Quality, **Jane Westenberger**, Forest Service, Department of Agriculture, and **Art Peters** of the Environmental Protection Agency.

In outlining possible funding sources, it was pointed out that the primary federal funding source for environmental education is Public Law 91-516, administered by the Office of Environmental Education, USOE. Under this Act, state departments of education are encouraged to participate in the design and implementation of state plans when seeking funds, as the Act emphasizes the cooperative role between the community and formal education channels. The Act also encourages innovations in education, focusing on "process education"—engaging in environmentally-related activities as a means of instruction.

In addition, participants learned of the coordination mandate of PL 91-516, which encourages other Office of Education programs—and programs of HEW and other federal agencies—to support environmental education activities. This support is carried out in conjunction with the general education objectives of the programs. For example, Title III, ESEA could use environmental education as an innovative method for improving the quality of education in elementary and secondary schools; Title I, ESEA could be used to improve the quality of education for disadvantaged students through environmental education projects and activities. Environmental education programs can also be incorporated within programs for the handicapped, career education modules, adult education, and programs in the Environmental Protection Agency and the Department of the Interior. Significant outcome of this design is a substantial increase in the amount and type of federal support available for environmental education projects in the states.

The state representatives met for an afternoon in action groups to discuss what role the participants might play in furthering environmental education within state educational structures, and how to better relate their programs to the total community.

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SMEAC

Dr. Robert W. Howe
Director

Dr. Robert E. Roth Associate Director Environmental Education	Dr. John F. Disinger Faculty Research Associate Environmental Education
Dr. Stanley L. Helgeson Associate Director Science Education	Dr. Jon L. Higgins Associate Director Mathematics Education

**ERIC Information Analysis Center
for Science, Mathematics, and
Environmental Education
1460 West Lane Avenue
Columbus, Ohio 43210**

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Environmental Studies Topic of Conference

More than 200 participants were on hand to exchange ideas on the development and implementation of environmental studies programs at a national conference on **Environmental Responsibility in Higher Education: Processes and Practice** at Green Bay, Wisconsin, November 30-December 2, 1972. The conference was sponsored by University of Wisconsin-Green Bay, and co-sponsored by the Wisconsin Environmental Education Council, the U. S. Office of Environmental Education, the Conservation Foundation, and the National Audubon Society.

Dr. Harold L. Hodgkinson, Center for Research and Development in Higher Education, University of California at Berkeley, delivered the keynote address on the response of higher education to societal needs. Much of the conference time was spent in small work groups focusing on a series of processes and problems of concern to undergraduate education and institutions which seek to be actively involved in environmental studies. Work groups and their chairmen included:

Problem-Focused Curriculum—**Paul Sheppard,** Dartmouth;

Teaching of Interdisciplinary Courses—**Roderick Nash,** University of California at Santa Barbara;

Off-Campus Study—**Spenser Havlick**, San Jose State;

Student-Designed Program— **Benjamin Shaine,** University of California at Santa Cruz;

Problems of the Student—**H. J. Day,** University of Wisconsin-Green Bay;

Problems of Faculty—**Keith White**, University of Wisconsin-Green Bay;

Inter-Institutional Cooperation—**Donald Aitken,** San Jose State;

Involving the Arts and Humanities—**Richard Sherrell** and **Philip Thompson,** University of Wisconsin-Green Bay;

Acceptability of Nontraditional Programs—**Paul Olson,** University of Nebraska;

Problems of Research Resource Materials—**Dick Presnell,** University of Wisconsin-Green Bay;

Risks of Interdisciplinary Scholarship among Faculty—**Robert Ditton**, University of Wisconsin-Green Bay; and

Environmental Studies and the Needs of the Times—**George Pratt,** Environmental Protection Agency.

A compilation of the proceedings of the conference is anticipated by late spring, and may be obtained at that time at cost from **Dr. Robert S. Cook,** Environmental Education Council, University of Wisconsin-Green Bay.

UNESCO Group Gives Balanced Presentation

A balanced analysis of the "cases" for and against man as a species in his dealings with the earth as a planet was made during the 16th Conference of the U.S. National Commission for UNESCO in Houston, November 19-22.

A courtroom format was utilized, with expert witnesses appearing both "for" and "against" man; legal counsel represented both *homo sapiens* and *Mother Earth*, allowing each witness to plead his case and submitting each to cross-examination. A three-judge panel presided, while the 450 conference participants served on ten juries to hear the evidence, determine guilt or innocence, and make recommendations for future courses of action for the species, as well as for themselves.

Witnesses in the case were:

Walter J. Bogan Jr., director, U.S. Office of Environmental Education;

Lester R. Brown, Overseas Development Council;

Arthur W. Busch, administrator, Southwest Region, EPA;

Charles M. Cargille, The Institute for Global Dynamics;

Robert J. Catlin, director, Division of Environmental Affairs, Atomic Energy Commission;

Philander Claxton, special assistant to the Secretary of State for Population Matters;

Mrs. Donald Clusen, director, Environmental Affairs, League of Women Voters;

Norton S. Ginsburg, dean, Academic Programs, Center for the Study of Democratic Institutions;

Richard Gonzales, former board member and treasurer, Humble Oil and Refining Company;

Peter T. Jones, vice president, Montgomery Ward & Company;

James S. Rummonds, member of the President's Commission on Population Growth and the American Future;

Rodney Shaw, president, The Population Institute.

Attorneys participating included **Brian T. Dolan,** Denver; **Lawrence Kegan,** executive director, Population Crisis Committee; **Clyde O. Martz,** Denver; **E. F. Roberts,** Cornell University; **Kenneth Rubin,** Cornell University; **Donald H. Sherwood,** Denver.

Judges were **Frank M. Wozencraft,** Houston; **Sarah T. Hughes,** Dallas; **Todd Hollenbach,** Louisville, Ky.

Special presentations were made by **George A. von Peterffy,** deputy assistant Secretary of State for International Organization Affairs; **Dr. Robert M. White,** administrator of National Oceanic and Atmospheric Administration; and **Dr. Joseph Sittler,** theologian, University of Chicago.

The **Rev. Laurence T. Murphy** served as conference chairman; **Raymond F. Kohn** was conference director; **Ann F. Jablonski** was administrative officer; **Anthony F. Merrill** was press officer; and **Alice Reynolds Pratt** was regional coordinator.

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EPA Symposium Ponders Information Policy

Several possible courses for national environmental information systems policy were considered at the Environmental Protection Agency's National Environmental Information Symposium, held in Cincinnati in September 1972. They included:

—Development of one master system for all environmental information;

—Development of an appropriate number of diverse but compatible systems;

—Development of completely independent systems for various types of environmental information, with no concern for compatibility.

The program featured a number of presentations and discussion groups, in such information-related areas as Information and Data Centers, Publications, and Document Service and Referral Activities.

Keynote speaker was **William D. Ruckelshaus**, EPA administrator. Other speakers included representatives of EPA, environmental publications and interest groups, the academic community, business and industry, and various governmental agencies such as National Bureau of Standards, Library of Congress, Oak Ridge National Laboratory, Council on Environmental Quality, National Science Foundation, Department of Commerce, National Library of Medicine, Justice Department, Office of Economic Opportunity, and others.

An extensive display of information hardware and software, by both governmental and private groups, was exhibited. Approximately 1500 were in attendance at the conference.

"Inherit the Earth" TV, Film Lessons Available

A series of nine 20-minute, 16 mm. color film lessons concerning the environment and directed at the intermediate grades has been produced by KQED Educational Services, San Francisco.

Film instructor for **Inherit the Earth** is ecologist Gary Breckon of the University of California at Davis. In this series, "Children are encouraged to think creatively about such topics as the spacing of people, recycling of waste materials, and the design of new systems of transportation. At the same time, the child is warned that although blue-sky planning is interesting and valuable, all such planning must eventually be modified by the realities of economics, property rights, and the will of the majority."

Lesson titles include: "What is a Community?," "A Cruel Friendly Place," "Where Have All the Farmers Gone?," "Spread Out or Squeezed In," "A Big Exciting Mess," "Can We Make It Any Better?," "What Will We Do With It?," "The Space Eaters," and "What Will We Do Saturday?."

Inherit the Earth may be used either by television transmission or as an audio-visual presentation within a classroom. Purchase fee (without television rights) is $160 per program, while one-week rental (also without television rights) is $15 per program. Quotations on television use of the programs are available from the distributor:

Great Plains National Instructional TV Library
P. O. Box 80699
Lincoln, Nebraska 68501
(402) 467-2502

PEMAP EXPANDS

Extension of the President's Environmental Merit Awards Program to a larger audience than originally targeted has been announced by **Gladys O'Donnell**, national coordinator. The program is now open to students of both public and private institutions, through elementary, junior, and senior high schools, summer camps, and youth groups.

Four general areas of activities are included in PEMAP guidelines: Educational Achievement, Environmental Awareness Action, Community Service, and Public Affairs.

Also noted are four general areas of concern: Planning, Preservation, Control, and Restoration.

Information has been mailed to 110,500 schools for the 1972-73 Program. Further information is available from:

President's Environmental Merit Awards Program
United States Environmental Protection Agency
Waterside Mall West
401 M Street, S. W.
Washington, D.C. 20460

TITLE III E.E. DIRECTORS MEET

Interchange of ideas and sharing of problems and local solutions were the major agenda items at a meeting of directors of Title III, ESEA, environmental education projects held at Pere Marquette State Park, near Grafton, Ill., in October.

Among scheduled activities were:

A presentation concerning environmental education as seen from the federal level, by **Gerald J. Kluempke,** Executive Secretary, President's National Advisory Council;

A discussion of state plan development in environmental education, using the Illinois proposed plan as a model, led by **Dr. Paul Yambert**, Southern Illinois University;

A presentation concerning services of ERIC, particularly SMEAC, of potential interest to project directors, by **John Disinger;**

An analysis of research related to environmental education, particularly concerning research activities underway and projected at the University of Wisconsin Research and Development Center, by **Dr. Alan M. Voelker**; and

Presentations and discussions concerning each of the projects represented.

Ray E. Miller, director of Operation Survival Through Environmental Education, Grafton, Ill., served as host;

Dr. Luther Kiser, director of Project ECO (Environmental Curriculum Opportunity), Ames, Iowa, was coordinator. Other participants included:

Clifford A. Phaneuf, director, Environmental Center for Our Schools, Springfield, Mass.;

Dr. Dean A. Rosebery, director, Missouri Environmental Studies Approach (MESA), Kirksville, Mo.;

Don Sundean, Center for Environmental Studies, Mt. Vernon, Wash.;

Gary D. Swant, Powell County Environmental Center, Deer Lodge, Mont.;

William Thrasher, Interdisciplinary Environmental Education K-12, Ft. Lauderdale, Fla.;

Robert Warpinski, Project I-C-E (Instruction-Curriculum-Environment), Green Bay, Wisc.; and

Lynn Yount, Woodstock Environmental Education Project, Woodstock, Ill.

Publications of Interest . . .

Problem-focused education, centered around environmental education, in college and university programs is the topic of a report issued by the Commission on Undergraduate Education in the Biological Sciences (CUEBS) under a grant from the National Science Foundation.

Environmental Education: Academia's Response, by James L. Aldrich of the Conservation Foundation and CUEBS director Edward J. Kormondy, contains reports on programs at 15 institutions, including nine large universities (Huxley College, Indiana University, Pennsylvania State University, State University of New York at Buffalo, University of British Columbia, University of California at Santa Cruz, University of Michigan, University of Wisconsin—Green Bay, and University of Wisconsin—Madison), two undergraduate liberal arts colleges (Dartmouth and Williams), and four experimental colleges (College of the Atlantic, Evergreen State College, Hampshire College, and Prescott College).

Copies of the report are available free of charge from:

The American Institute of Biological Sciences
3900 Wisconsin Avenue, N.W.
Washington, D.C. 20016

or

The Conservation Foundation
1717 Massachusetts Avenue, N.W.
Washington, D.C. 20036

The **American Freedom From Hunger Foundation** has available a variety of educational materials which are of potential interest to the environmental educator. Among them are:

New World, a newspaper presenting information and perspectives on the issues of poverty and development, subscriptions $5 per year;

Development: Bridge to Peace, a 40-page curricular unit on the study of development, $1.50;

A Guide to Films About Development, descriptions of fifty films about poverty and development in the U.S. and fifty films about these issues around the world, 42 pages, $1.50;

Target: Development Action, a 90-page "how-to" handbook for action/education projects in local communities, to bring development issues to the attention of the public, and to stimulate commitment to personal action for development goals, $1.50;

Issue Packet: Hunger and Development, more than a dozen selected pamphlets, article reprints, etc., introducing major facts and figures, points of view and conclusions concerning hunger, malnutrition, and food production in the context of development, both U.S. and global, $2.00;

Issue Packet: Population and Development, ten pamphlets and reprints offering different points of view, charts, statistics, and references for further study, $2.00;

Conversations on Development, a cassette-tape series of discussions about development issues:

No. 1, "What is Development?"
No. 2, "Bangladesh;"
No. 3, "Robert Theobald and Barbara Ward at the International Development Conference;"
No. 4, "Development and Liberation."

Each tape costs $2.00.

Orders, accompanied by check made out to the American Freedom from Hunger Foundation, should be mailed to the foundation at 1717 H Street, NW, Washington, DC 20006. Quantity discounts are available for large orders.

The Canadian Education Association has published a booklet, **Outdoor Education in Canada—1972,** by John H. Passmore, University of Toronto, which reports a survey on outdoor and environmental education conducted by Prof. Passmore with assistance from a travel grant provided by Imperial Oil Limited.

The 72-page booklet considers present trends and developments in outdoor education and environmental studies across Canada, and is available at $2 a copy from:

Canadian Education Association
252 Bloor Street West
Toronto 5, Ontario
Canada

The Canadian Wildlife Federation has announced publication of **Learning About Environment,** the first of a sequential series of ecology units for use in grades 6, 7 and 8. Authors are Robert F. Harrington and Richard C. Passmore.

The 64-page student text, in paperback, is accompanied by a 16-page teachers' manual providing additional background, examples, suggestions and references. Stressed in both volumes are man's place in nature, the complexity of interactions within natural systems, the vulnerability of individual strands of delicate webs, the limits of the earth and the need to husband its resources intelligently.

Copies are available at $1.50 each, for each volume, with check or money order payable to Canadian Wildlife Federation, from:

Canadian Wildlife Federation
1419 Carling Avenue
Ottawa, Canada. K1Z 7L7

The Family Unit, the proceedings of the third annual population growth symposium held at University of Wisconsin—Green Bay in March 1972, is now available at $4.95 from:

Office of the Dean of Colleges
University of Wisconsin—Green Bay
Green Bay, Wisconsin 54302

Checks should be made payable to: University of Wisconsin Foundation.

The 193-page report, edited by A. R. Doberenz, focuses on problems at the basic level at which decisions concerning family size are reached, the family unit. Papers include: J. D. Tydings, *Developing Public Policies for Population Stabilization;* I. L. Reiss, *The Family: Past, Present and Future;* R. J. Pion, *Sexual and Reproductive Planning for Family and Non-Family Units;* S. L. Salyer, Commission on Population Growth and the American Future: *A Member's Notes;* J. D. Shier, *The Myths of the American Family;* J. M. Falk, *Some Unanticipated Results of Family Planning in Previous Generations;* N. F. Wechsler, *Fertility Control and the Minor;* L. L. Lewis, M. J. Schommer and I. Vander Walde, *Religious Considerations in Limiting the Size of the Family, Parts I, II, and III;* S. P. Roth and D. S. Kovacic, *A Look at Birth Control Laws in Wisconsin: A Student Project.*

Also available are proceedings of previous symposia, *Population Growth: Crisis and Challenge* (1970, 144pp., $1.50), edited by Doberenz and J. R. Beaton, and *Family Planning Programs* (1971, 177pp., $2.00), edited by Doberenz and N. B. G. Taylor.

A new publication in National Science Teachers Association's "How to" series, **How to Investigate the Environment in the City: Air and Water,** by David C. Cox, describes the assembly of a variety of instruments for measuring air quality, including short- and long-term particulate collecting devices, and a comprehensive water-testing kit. Also supplied are sources of commercial instruments for specialized activities.

Single copies of the publication are 50 cents. Ten per cent discounts are offered for 2-9 copies, and twenty per cent discounts for more than nine copies, from:

National Science Teachers Association
1201 16th Street, N.W.
Washington, D.C. 20036

Energy Resources of the United States, circular 650 of The United States Geological Survey, gives estimates of the nation's resources of coal, petroleum liquids and natural gas, uranium, geothermal energy, and oil shale. The report, by **P. K. Theobald** and others, is available free from:

U.S. Geological Survey
Washington, D.C. 20242

Ecosources, a monthly bibliography of references for environmental education and ecology, may be obtained by sending stamped, self-addressed envelopes to:

Mrs. Janet Woerner
Science Department
Freeland High School
710 Powley Dr.
Freeland, Mich. 48623

Since no permanent mailing list is maintained, several envelopes should be supplied at one time to insure continued service.

A series of marine science teaching aids is being published by the Center for Wetland Resources of Louisiana State University with the support of the Sea Grant Office of National Oceanic and Atmospheric Administration (NOAA). The series is addressed to teachers of marine-related courses at the high school and junior high school levels. The first publication in the series, "Measurement of Currents," will be sent to interested teachers subject to available supplies of the publication. Address requests to:

Dr. James P. Schweitzer
Center for Wetland Resources
Louisiana State University
Baton Rouge, La. 70803

Environmental Resource, a magazine published five times per year, presents short articles on basic research in earth and environmental sciences and its impact on society. Subscription price is $4.00 per year, or $7.00 for overseas subscriptions. Those interested should contact:

Mid-Continent Scientific
5616 N. St. Louis Avenue
Chicago, Ill. 60659

The ESSO Educational Foundation has awarded a grant to the University of Maryland for the production of **Environmental Resource Packets** aimed at college science teachers. **John M. Fowler**, visiting professor of physics at Maryland, is directing the project, which has the cooperation of most of the U.S. College Science Organizations and the Scientists Institute for Public Information. Requests for additional information and/or inclusion on the packet mailing list should be directed to:

Environmental Resource Packet Project (ERPP)
Department of Physics and Astronomy
University of Maryland
College Park, Maryland 20742

Employment Outlook for Environmental Scientists— Geologists, Geophysicists, Meteorologists, Oceanographers, a reprint from the **Occupational Outlook Handbook,** 1972-73 edition, is available for twenty cents from:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Stock Number is 2401-2129

A free 24-page guide to recommended ways and means of using optical microscopy for the detection and measurement of air, water, and food pollutants, is available from:

Scientific Instrument Division
Bausch and Lomb
Department 6606
635 St. Paul Street
Rochester, New York 14602

1972 Listings of Interior Environmental and Natural Resources Films, a leaflet describing films dealing with topics pertinent to the title, is available from:

Department of the Interior
Office of Communications
Washington, D.C. 20240

A "Science and Public Affairs" book, **The Energy Crisis,** is a compilation of articles from past issues of the **Bulletin of the Atomic Scientists,** with additional articles, dealing with energy problems and possible solutions. The collection is available for $5.95 in cloth binding or $2.95 in paperback from:

Circulation Manager
Bulletin of the Atomic Scientists
1020-24 E. 58th Street
Chicago, Ill. 60637

A Guide to Planning and Conducting Environmental Study Area Workshops contains instructions on how to plan and conduct an environmental education workshop and evaluate its effectiveness. The 50-page booklet is available for $2.25 from:

National Education Association
1201 16th Street, N.W.
Washington, D.C. 20036

Readers in Ohio may be interested in the work of the Natural Areas Council as discussed in a free leaflet, **Preserving Ohio's Natural Heritage.** In addition, readers in other states may find information therein which can be of use in setting up similar systems. The leaflet is available from:

Natural Areas and Scenic Rivers Planning Section
Ohio Department of Natural Resources
811 Ohio Departments Buildings
Columbus, Ohio 43215

Each issue of **Teachers' Environmental Enrichment Material (TEEM)** deals with a key environmental concept identified through in-depth research, with content based on a broad environmental information system. It presents teaching/learning activities designed to permit teachers K-12 to introduce an environmental dimension into all subjects. Published nine times yearly, the publication has a subscription rate of $12.50 per year ($13.50 in Canada and Mexico, $15.00 foreign), from:

TEEM
T. S. Denison and Company, Inc.
5100 West 82nd Street
Minneapolis, Minn. 55437

Environmental Education: A Sourcebook, edited by Cornelius J. Troost and Harold Altman, presents more than 100 readings appropriate to the topic of the title in its 608 pages. Major topics include: The Organism and Its Environment, The Destruction of the Environment, and Educational Implications: An Action Program for School, Classroom, and Field.

The volume is available for $11.95 (cloth) or $8.95 (paper) from John Wiley and Sons, Publishers.

NSF Funds Summer Institutes in Environmental Studies

Environmental concerns will be the primary focus of 14 programs for secondary school teachers during the summer of 1973, as announced by the National Science Foundation under its Summer Institute Program.

Environmentally-oriented institute programs include:

UNIVERSITY OF ARKANSAS, 4 weeks, June 4-29, at Fayetteville Campus; **Environmental Education**; for teachers of science in Arkansas; Dr. Sallylee Hines, Graduate Education 315, University of Arkansas, Fayetteville, AR 72701;

UNIVERSITY OF ARKANSAS, 4 weeks, July 2-27, at Little Rock Campus; **Environmental Education**; for teachers of science in Arkansas; Dr. Salleylee Hines, Graduate Education 315, University of Arkansas, Fayetteville, AR 72701;

THE CITY COLLEGE, 6 weeks, July 2-Aug. 10; **Environmental Science: Human Ecology; Urban Conservation; Field and Laboratory Studies; Curriculum Development**; primarily for senior high school teachers of science in the New York metropolitan area; Dr. Chester B. Kremer, Department of Chemistry, The City College, New York, NY 10031;

FLORIDA ATLANTIC UNIVERSITY, 9 weeks, June 16-Aug. 16; **Topics in Human Ecology, Environmental Chemistry, Geology, Climate, and Water Supply; Curriculum Development in Environmental Studies**; for teachers of science in Florida; Dr. Samuel F. Clark, Department of Chemistry, Florida Atlantic University, Boca Raton, FL 33432;

THE UNIVERSITY OF IOWA, 8 weeks, June 4-July 27; **Contemporary Problems of Society; Ecological Studies; Pollution Problems; Seminar in Interdisciplinary Environmental Studies**; for teachers of biology and social science; Dr. Robert E. Yager, Science Education Center, The University of Iowa, Iowa City, IA 52240;

UNIVERSITY OF LOUISVILLE, 6 weeks, June 11-July 20; **Ecological and Environmental Quality Studies; Curriculum Development in Environmental Science and Technology**; for teachers of science in the Louisville metropolitan area; Dr. Joseph L. Pavoni, Environmental Engineering Program, University of Louisville, Louisville, KY 40208;

MIDDLE TENNESSEE STATE UNIVERSITY, 10 weeks, June 4-Aug. 11; **Terrestrial Ecology; Aquatic Ecology; Environmental Chemistry; Detection of Chemical Pollutants; Environmental Effects of Energy Conversion Processes; Radiation and the Environment**; for science teachers in Middle Tennessee; Dr. J. Eldred Wiser, Department of Chemistry and Physics, Middle Tennessee State University, Murfreesboro, TN 37130;

UNIVERSITY OF NEVADA, RENO, 4 weeks, June 11-July 6; **Environmental Science**; primarily for Nevada teachers of science and social science; Dr. John H. Trent, Department of Secondary Education, University of Nevada, Reno, NV 89507;

THE OHIO STATE UNIVERSITY, 8 weeks, June 25-Aug. 17; **Environmental Sciences**; primarily for teachers of science in the midwest and northeast; Dr. Victor J. Mayer, Faculty of Science Education, The Ohio State University, 1945 N. High St., Columbus, OH 43210;

SAINT CLOUD STATE COLLEGE, 6 weeks, July 9-Aug. 17; **Environmental Science**; for junior high school teachers of science; Dr. Harold Hopkins, Department of Biology, Saint Cloud State College, Saint Cloud, MN 56301;

SAINT JOSEPH COLLEGE, 6 weeks, June 25-Aug. 3; **Environmental Chemistry; Environmental Research**; primarily for teachers of chemistry and related subjects in the Connecticut Valley; Sister M. Clare Markham, Department of Chemistry, Saint Joseph College, West Hartford, CT 06117;

SOUTHWESTERN STATE COLLEGE, 8 weeks, June 4-July 27; **Environmental Perceptions and Planning**; primarily for junior high teachers of science in the Southern Great Plains Region; Dr. James F. Lovell, Biological Sciences, Southwestern State College, Weatherford, OK 73096;

SYRACUSE UNIVERSITY, 6 weeks, July 2-Aug. 10; **Environmental Studies**; for teachers of science and social science in the northeastern states; Dr. William C. Ritz, Director, Environmental Studies Institute, 118 Clarendon St., Syracuse, NY 13210;

TENNESSEE TECHNOLOGICAL UNIVERSITY, 10 weeks, June 17-Aug. 25; **Environmental Education**; for science teachers in the Southern Appalachian Region; Dr. Jerry B. Ayers, Box 5116, Tennessee Technological University, Cookeville, TN 38501;

UNIVERSITY OF WISCONSIN SYSTEM, at Pigeon Lake Field Station, Drummond, WI, 6 weeks, June 17-July 27; **Environmental Assessment**; for teachers of science; 1 week, July 25-Aug. 1, **Program Evaluations and Implementation of Field-work in Science Courses**; for administrators from schools of participants; Dr. Roy E. Heath, 125B Dempsey Hall, University of Wisconsin-Oshkosh, Oshkosh, WI 54901;

UNIVERSITY OF WISCONSIN-SUPERIOR, 6 weeks, June 25-Aug. 3; **Environmental Science (Tilton Project Curriculum)**; for teachers of science; Dr. Rudy G. Koch, Department of Biology, University of Wisconsin-Superior, Superior, WI 54880.

Environmental studies also will be included in many of the other summer institutes, according to the NSF. The Summer 1973 program is supporting 237 programs conducted by 178 colleges and universities providing study opportunities for 8400 teachers from throughout the country.

A directory listing institutions offering Summer Institutes for Secondary School Teachers and Supervisors may be obtained by a postcard request, addressed to:

Summer Study Program
Division of Pre-College Education in Science
National Science Foundation
Washington, DC 20550

Applications by individual teachers and supervisors must be submitted to the various institutes by March 1, 1973, to guarantee consideration. Stipends up to $75 per week are available from the grant funds, with supplementary allowances to participants for dependents and travel. Participants pay no tuition or fees.

91-516 GUIDELINES AVAILABLE

The U.S. Office of Environmental Education has announced that application information for funding of proposals under Public Law 91-516, the Environmental Education Act, during Fiscal Year 1973 is now available. Projected deadline for submittal of applications is March 12.

Persons desiring application information should contact:

Environmental Education
U.S. Office of Education
Washington, D.C. 20202
(202) 755-7682

NAEE PLANS NATIONAL MEETING

A meeting of the Board of Directors of the National Association for Environmental Education was held November 16-17 in Las Vegas, in preparation for the national meeting, planned for St. Louis, Mo., April 29 through May 2, 1973.

Items discussed included revision of the NAEE constitution to expand membership beyond college, junior college, and community college personnel. A secondary school curriculum project in environmental education was initiated, and will be completed in the near future.

NAEE hosted a meeting of the National Advisory Committee of the U.S. Office of Environmental Education in late January.

President of NAEE is **Dr. Robert McCabe**; secretary-treasurer is **Dr. Robert Mines**. Both are at Miami-Dade Junior College, Miami, Fla.

REGIONAL CONFERENCES UNDERWAY

A second round of regional conferences for state coordinators of environmental education in the ERIC/SMEAC network is now underway. The first round of such conferences was completed in autumn 1971; the current set was scheduled for December through February, with meetings in Columbus, O., Las Vegas, Nev., Springfield, Mass., Atlanta, Ga., and Lincoln, Nebr.

Purpose of the meetings is to facilitate communications involving both the state offices and SMEAC, improved services to practitioners in the field being the payoff for both groups. One representative from each state has been invited, that one being the individual designated as the "official" state coordinator for environmental education.

SMEAC

Dr. Robert W. Howe
Director

Dr. Stanley L. Helgeson
Associate Director
Science Education

Dr. Patricia E. Blosser
Research Associate
Science Education

Mrs. Beverly M. Lee
Research Associate
Environmental Education

Dr. Jon L. Higgins
Associate Director
Mathematics Education

Dr. F. Joe Crosswhite
Research Associate
Mathematics Education

Dr. Marilyn N. Suydam
Research Associate
Mathematics Education

Dr. Robert E. Roth
Associate Director
Environmental Education

Dr. John F. Disinger
Research Associate
Environmental Education

Dr. John H. Wheatley
Research Associate
Environmental Education

**ERIC Information Analysis Center
for Science, Mathematics, and
Environmental Education
1460 West Lane Avenue
Columbus, Ohio 43210**

ADDRESS CORRECTION REQUESTED

SMEAC

ERIC

Offices of ERIC SMEAC moved as of March 1, 1973, to a new address on The Ohio State University Campus:

ERIC Information Analysis Center for
Science, Mathematics and Environmental Education
400 Lincoln Tower
The Ohio State University
Columbus, Ohio 43210
(614) 422-6717

SMEAC BEGINS SERVICES FOR E.E. COORDINATORS

Two new services for state coordinators of environmental education have recently been initiated by ERIC/SMEAC, with the cooperation of members of the state coordinator network.

Copies of abstracts of particular interest to environmental educators from monthly issues of **Research in Education** are being assembled by SMEAC staff, and mailed to state coordinators. This monthly service was begun in December 1972.

A newsletter targeted specifically for state coordinators and consisting primarily of contributions from them was first printed in February 1973. Also invited to contribute on a regular basis have been members of the staff of the U.S. Office of Environmental Education and several offices of the U.S. Environmental Protection Agency.

CCM Publishes New ERIC Products

Among new ERIC products available are:

Thesaurus of ERIC Descriptors, 4th edition, the source of all subject headings used to index and retrieve documents and journal articles in the ERIC collection. Included are newly assigned descriptors and rotated descriptor display as of March 1972. It is priced at $8.95 (cloth) and $6.95 (paper).

ERIC Educational Documents Index, a new update volume covering 1970-71, providing total coverage of references to all research documents in the ERIC collection, from ED 001 001 through ED 054 390. The Index includes subject and author indexes with complete titles and ED accession numbers. **EEDI** 1966-69 is available, with library binding, in two volumes at $34.50 the set, while **EEDI** 1970-71 is available in one volume, with library binding, at $25.

ERIC Educational Documents Abstracts, cumulation of report resumes which appeared in monthly issues of **Research in Education,** January 1968 through December 1971, ED 012 349 through ED 054 390. **EEDA** is available either in a four-volume set (1968-71) at $126, with library binding, or in individual volumes bound by calendar year at $35 each.

The products described above are available from:

CCM Information Corporation
866 Third Avenue
New York, New York 10022

COMMERCIAL ORGANIZATIONS DEVELOP E.E. PROGRAMS

Two commercial organizations have initiated programs which are of potential interest to environmental educators.

Owens-Illinois, Inc., sponsors an **Environmental Awards Program** for all units of Boy and Girl Scouts of the councils in which its plants are located. Encouragement is thus provided for scouts to undertake beautification, anti-litter, and recycling activities. During 1972 more than 1300 scout units, with a total membership of 38,000, participated.

Two local $25 awards are offered at each of the 100 company facilities. National recognition is awarded outstanding units with $250 prizes. There is a $500 Grand National Award, which in 1972 was won by Junior Girl Scout Troop 1190 of Alpharetta, Ga., for creating a one-mile nature trail on local county land.

Further information is available from:

E. L. Herron, Chairman
Environmental Awards Program
Owens-Illinois, Inc.
P. O. Box 1035
Toledo, OH 43601

Pepsi-Cola Company, in cooperation with Keep America Beautiful, Inc., is sponsoring **Ecology Council of America** (ECO America), a program "designed to assist young people in grades 9-12 to carry out environmental programs in their communities," according to Clifford Nash, chairman of the group's Youth Advisory Committee.

ECO America provides guidance to high school ecology clubs in carrying out group projects directed toward solutions of specific environmental problems. Among awards are certificates for all participating clubs, plaques for state winners, and attendance at a projected national environmental seminar, at which national awards will be presented.

Materials available to participating clubs include a project guide, project checklist, newsletter, and a film, **Yours for a Change,** on loan. Deadline for entries is April 28, 1973.

More information is available from:

ECO America
Room 2200
99 Park Avenue
New York, NY 10016

SE 017 938

Simulations

A Selected List of Urban and Environmental Gaming/Simulations gives basic descriptive information, prices and sources of a number of games and simulations considered useful for educational purposes and ranging from "box" games to complex computer simulations. It is available from:

Environmental Simulation Laboratory
School of Natural Resources
The University of Michigan
109 E. Madison
Ann Arbor, MI 48104

The Environmental Simulation Laboratory of the University of Michigan's School of Natural Resources has announced a Computer Urban Gaming Workshop for professional educators and professionals in urban and regional planning for June 4-8, 1973.

Among games/simulations to be considered are **METRO-APEX**, the **City** series and its current version, the **River Basin Model**, along with **Housing Plan** and **Metropolis**. Registration fee is $200 per person for the five-day program.

A companion workshop on manual (non-computer) Urban Gaming is planned at ESL June 11-15.

Further information may be obtained from:

The University of Michigan Extension Service
Conferences and Institutes Department
412 Maynard Street
Ann Arbor, MI 48104
(313) 764-5304

Both player's and instructor's manuals for **CLUG: Community Land Use Game** by Allan G. Feldt, Anthony B. Dotson, Margaret Warne Monroe, and David S. Sawicki, are now available from:

The Free Press
Department FNY
Riverside, NJ 08075

CLUG, originally developed in 1963, places participants in roles in an urban situation, allowing them to become involved in the creation and operation of cities and thus discover important problems of urban growth and development.

A related publication from the same source is **Simulation and Gaming in Social Science**, by Michael Inbar and Clarice S. Stoll, a 313-page book on techniques of designing simulations and games.

Another role-playing game, "The Carolina Population Center Family Planning Administrator Training Game," was described in the August 1972 issue of **Management Science: Application**, in an article by R. Scott Moreland **et al.**

This simulation game draws upon demography in identifying "relevant independent and policy variables which intuitively or apparently relate to output variables." Thus, students are exposed to policy decisions within the context of a "typical" developing country.

Urban Games: Four Case Studies in Urban Development, by Margaret Warne Monroe, develops four urban games dealing with community issues, rapid transit, industrial park development, and regional shopping centers. Each requires a game operator and six or more players; all are based on the Policy Negotiations Model developed by Dr. Fred Goodman at University of Michigan.

Copies of the player's manual are $3.50, and the operator's manual $4.95. The game operator's set, one copy of each, costs $6.95, while a game set consisting of one operator's and seven player's manuals, costs $21.50. All are available from:

Department P
University Extension
University of California
2223 Fulton Street
Berkeley, CA 94720

NCDAI Serves As Source Of Drug Abuse Information

The National Clearinghouse for Drug Abuse Information (NCDAI) operates as a central source for the collection and dissemination of drug abuse information within the Federal government and serves as a coordinating information agency for groups throughout the country involved in drug abuse programs. As a result, the Clearinghouse provides services to diverse groups with varying information needs. Users include physicians, lawyers, pharmacists, teachers, police, local government officials, Federal government officials, community leaders, concerned parents, young people, researchers, and representatives from the printed and electronic news media.

A major activity of the National Clearinghouse for Drug Abuse Information is collecting data on drug abuse programs operating in both the private and public sectors. This includes collecting information on education programs and treatment facilities, the nature and effect of drugs, publications, curricula, community action programs, and the activities of local, State, and Federal agencies.

The NCDAI classifies, processes, and stores this information in both printed and computerized form. Drawing upon this mass of information, the Clearinghouse operates a nationwide network of drug abuse information centers, develops drug abuse resource materials, and provides responses to individual, specific inquiries.

In addition to collecting and storing, the Clearinghouse is also responsible for disseminating this information. The NCDAI prepares numerous information materials, including fact sheets, directories, bibliographies, and other publications, which are distributed to the general and professional public as well as to government agencies, both Federal and non-Federal. The Clearinghouse is geared to answer inquiries and provide services to the general public as well as to special groups such as educators or research scientists. Inquiries which cannot be answered directly by the Clearinghouse are referred to the appropriate government or private resources.

The Clearinghouse also employs its expertise to plan and develop information collection and processing systems concerning drug abuse information programs, resources, and materials. To date, the Clearinghouse has developed and operates information collection systems concerning national and international drug abuse programs, the world literature, and Federal grants and contracts concerned with drug abuse. In addition, it has developed information systems for the use of Federal officials, including those in the White House Special Action Office for Drug Abuse Prevention.

Persons desiring more information should direct inquiries to:

National Clearinghouse for Drug Abuse Information
5600 Fishers Lane
Rockville, Maryland 20852

Media

Miami-Dade Junior College has developed a learning system for a general education course in ecological-environmental education for either open-circuit or closed-circuit television. The three-credit, two-semester course is adisciplinary in approach, modular in format, and designed to provide students and the general public with an understanding of man's interdependence with his physical and social environment and his responsibility for it. The system includes television documentaries, a study guide, and the TIPS (Teaching Information Processing) System.

The documentary films include footage from every section of the nation, so that students enrolled in the course will get a national concept of environmental problems and solutions. Miami-Dade Junior College will provide instruction to institutions wishing to use the materials; interested institutions should write or call:

Open College
Miami-Dade Junior College
Miami, FL 33156
(305) 274-1333

Man Builds—Man Destroys, a series of 13 half-hour color television programs targeted on man and his environment, has been produced jointly by the New York State Education Department and United Nations Television. The series is available for use by educational institutions; information may be secured from:

Bureau of Mass Communications
New York State Education Department
Albany, NY 12224

Critical reviews of more than 600 environmental films selected from a field of several thousand are contained in **The Environment Film Review,** a 156-page reference guide which classifies films into 21 major environmental areas and also indexes them by title, specific subject, industry, sponsor, and broad areas of interest.

The reference volume is available for $20 per copy, with a ten per cent discount for prepayment, from:

Environment Information Center, Inc.
Index Research Department
124 East 39th Street
New York, NY 10016

A series of 48 five-minute radio programs has been prepared and is being distributed to radio stations by **The National Center for Resource Recovery, Inc.,** as an environmental public service which highlights positive efforts in solid waste management and resource recovery.

Programs recorded to date have included the Black Clawson resource recovery system in Franklin, Ohio; U.S. Bureau of Mines incinerator residue research; shredding and landfill operations in Madison, Wisconsin, and the Forest Products Laboratory's paper recovery project in Madison; St. Louis Union Electric—EPA Project utilizing shredded refuse as a supplemental fuel in power plants; newspaper deinking and recycling; pneumatic trash collection at Walt Disney World in Orlando, Florida; and many others.

Any station may subscribe to the free service by writing:

Director of Information
National Center for Resource Recovery, Inc.
1211 Connecticut Ave., N.W.
Washington, D.C. 20036

Higher Education Notes . . .

Colleges and universities have made varying responses to growing interest in and demand for environmental education as they have perceived it as appropriate to the needs of their students and their own missions. This page contains brief reports of a few programs; articles concerning others will be printed from time to time.

The University of California at Davis, with support from the Rockefeller Foundation, launched interdisciplinary research and teaching within its Division of Environmental Studies, established to coordinate the many projects related to the environment at the University's several schools and colleges. It also plans to expand the services of the campus to the state of California.

The new Division will offer elective courses and an undergraduate major in environmental studies. At the graduate level, it will continue the work of the Graduate Group in Ecology, which now consists of 45 faculty members in 20 departments, and will develop additional graduate programs.

The Institute of Ecology, its research component, will emphasize regional studies and investigation of specific topics, such as the decision-making process in determining land-use policy. The Council for Advanced Studies of the Environment, a group of eminent scholars from various fields, will continue to identify important environmental problems for intensive study.

An Environmental Specialist Program will work with public and private interest by extending information, conducting applied research in the field, and providing a practical feedback mechanism for the research and training programs of the Division. Also planned are workshop programs for dealing with problems too complex for handling by a single specialist and an Intern Program for graduate students working on resource management, waste disposal, and conservation, through association with government agencies and industries that have environmental concerns.

Dartmouth College has received a grant from the National Science Foundation for support of a program in Environmental Studies. Dartmouth has attached high priority and is committing substantial resources to the development of a comprehensive academic program in this area. Sponsored by faculty from the Natural Sciences and Social Studies with participation from the Humanities, the program's first aim is the development of an undergraduate curriculum which will give students access to a critical, systematic and reasonably comprehensive study of environmental problems. The undergraduate curriculum is being designed as a venture in general education, rather than as a pre-professional program for students planning graduate work. The new courses are therefore planned to complement traditional fields of concentration and the program is designed to be useful to students majoring in any department of the College. A series of generalized introductory courses has been planned to be taken early in the student's career and a number of small project-oriented courses are being designed for the junior and senior years. In these courses students will work together with students from other disciplines on well-defined environmental problems.

The program will be built into a regular academic budget base over a five-year period. The grant is for hiring of new faculty, release time for existing faculty and support for special program costs.

Monroe County, Michigan, Community College, located between the Toledo and Detroit metropolitan areas in a region where industrial concentration has resulted in extensive water pollution and increasing air pollution, has initiated a special training program for environmental control technicians. Support has been given by the Rockefeller Foundation. The new curriculum trains personnel to support engineering staffs and to operate quality control and monitoring equipment for industries, municipalities, and other entities concerned with environmental pollution.

This experimental curriculum is being developed by the college, aided by an Environmental Control Advisory Committee composed of representatives of industries, engineering consulting firms, municipal control agencies, and Wayne State University. The course consists of two years of full-time academic study plus one summer field experience.

Laboratory space and facilities are being provided at the nearby Environmental Research Center, an industry-supported, non-profit research facility with which the college cooperates. Industries in the area employ students for summer field experience and offer part-time work during the academic year.

University of Santa Clara plans a new four-year undergraduate program oriented toward systems engineering, with emphasis on ecological problems as exemplified by pollution. Support has been received from the Alfred P. Sloan Foundation. A new freshman course in physical-biological ecology will replace the present freshman chemistry course. The second year will include a sequence on human ecology, and during the third and fourth years, in applied ecology, the student will be engaged in the design of large systems of increasing complexity, such as power-distribution and transportation systems. During the third and fourth years the student will be involved in practical work with an industry or agency in the San Francisco Bay area, and in the summer between those years he will serve an internship with that industry or agency. Santa Clara also plans to bring visiting scholars and industrialists to the campus, and to work with professional societies to enhance the systems orientation of employed engineers.

The Williams Center for Environmental Studies, supported by the Rockefeller Foundation and directed by Dr. Andrew Scheffey Jr., has had impact on both **Williams College** and the community. Faculty and student interest in environmental problems has sharpened; new courses have been offered and off-campus study projects conducted. Faculty research has been influenced by the new interest in ecology, stimulated in particular by the practice of inviting outstanding scholars in environmental sciences to spend a period of residence on the campus. The Williams program has attracted interest from other colleges, indicating that it may serve as a model for centers of environmental studies under academic auspices in other parts of the country.

Community involvement has taken the form of discussions among leaders from public and private agencies, business, and the College. The Berkshire Panel for the Public Environment, a group of prominent citizens formed through the Center's initiative, has sponsored conferences on such themes as "The Corporation and the Environment" and "Solid Waste Disposal." The panel encourages practical policy makers and academic experts to come together to develop approaches to regional development.

An Environmental Systems Study Program, an interdisciplinary effort based on a project approach to education, is being initiated at **Worcester Polytechnic Institute,** with support from the Alfred P. Sloan Foundation. It focuses on the solution of environmental problems using systems methods of analysis and design. A key element in the program is the assignment of students to work off-campus on problems facing industrial and governmental organizations. Other member schools of the Worcester Consortium for Higher Education participate in such areas as sociology, psychology, public health, ecology, and meteorology, to help insure the necessary breadth of the program.

A School of Public and Environmental Affairs, opened in Autumn 1972 at **Indiana University,** represents an effort by the university, working with the community, to relate its programs and resources more directly to the public-sector needs of society.

Charles F. Bonser, dean of the school, has indicated that the School will eventually encompass all eight of IU's campuses. Emphasis is being placed on interdisciplinary efforts, with the hope of upgrading the quality of government services, particularly by preparing students in degree and non-degree programs for environmental management positions.

The School of Education of **The City College of New York** has announced a new program leading to the Master of Arts degree in Environmental Education. Information concerning the 30-credit, interdisciplinary program may be obtained from:

Prof. Harold J. McKenna
The City College
School of Education, Brett Trailer
135th Street & Convent Avenue
New York, NY 10031

Wave Hill Operates With Foundation Grant

A Ford Foundation grant to the **Wave Hill Center for Environmental Studies,** Riverdale, New York, is helping to expand further a new concept of environmental education, based on an English model, which uses the child's immediate physical world as a prime educational resource. Over the next two years the center plans to introduce this concept of environmental education in all seventeen elementary schools in Community School District 10 of the South Bronx. By then the program's directors expect to have trained 300 teachers, half of whom will train others. Teachers attend workshops and seminars at Wave Hill, and also special graduate courses at Fordham University.

Wave Hill, which occupies a twenty-two acre estate in the Riverdale section of the Bronx, was established in 1966 as a "New York City institution for environmental science and for the enjoyment of music and the arts." Financed by the city and private contributions, Wave Hill received Ford Foundation support two years ago to initiate a special project for young children that used the environment not as an end of learning but as a means. In this sense, environmental education goes beyond nature study and ecology to encompass the student's whole world. In part the Wave Hill approach involves the child in the world outside the classroom—junkyards, subway systems, the center's gardens. It also involves the child, alone or with a few others, in working with a variety of materials within the classroom—seeds, batteries, rocks, live plants and animals, objects salvaged from the street.

Starting with a few schools in the South Bronx and Harlem, the project has trained seventy-five teachers, and reached twenty-six schools and several thousand children. The teachers in the project have incorporated the children's engagement with their actual environment into work units for most standard school subjects, from art to arithmetic. The approach has proved especially effective in reaching children who are indifferent to the more traditional forms of education.

ERIC Searches . . .

Three procedures for searching ERIC files, two of them services and the other a computer software package, have recently been announced.

Oregon Total Information System (OTIS) will do ERIC subject searches for institutions on ERIC records dated 1969 or later. The logical operators "or," "and," and "and not" may be used with no more than 20 descriptors. Up to 130 citations can be printed. OTIS charges will not exceed $18 per search, F.O.B. Eugene, Oregon. The fee includes internal handling and maintaining the files. Coding is supplied by the user. No maximum or minimum number of searches is required. ERIC searches are done free for educators in the state of Oregon. This service is administered through the Retrieval-Dissemination Center, Oregon Board of Education, Salem. For further information, contact:

Benjamin L. Jones
Oregon Total Information System
354 E. 40th Avenue
Eugene, Oregon 97405

The **Resource Information Center,** Box 8009, University Station, Grand Forks, ND 58201, has available a low-cost computer software package for searching the ERIC files. The package functions in two phases. The first accepts a batch of searches, as many as a hundred or more depending on the amount of computer storage available. Each search consists of ERIC descriptors connected by "and," "or," or "not" logic. After performing the logic the first phase prints, for each search, a list of ED and/or EJ numbers. The second phase prints abstracts and other selected information found in **Research in Education** and **Current Index to Journals in Education.** The user has the option of canceling any of the searches which did not perform satisfactorily in phase one, in order to reduce printing time and cost. Cost of processing a search ranges from two to five dollars depending upon the type of computer, number of searches in the batch, and number of hits.

This software package can be installed on any IBM 360 from a Model 30 upwards. Minimum hardware requirements are one 2311 or, preferably, 2314 disk, one magnetic tape drive, and at least 36k of memory. While the software package can be operated under DOS, it functions most efficiently under OS.

The staff of Resource Information Center will negotiate an installation. The cost includes travel, per diem, plus $400 for RIC expenses. An installation will be performed or only travel expenses will be charged. Documentation of the software package and training of personnel in its use will be provided.

The New England Research Applications Center (NERAC) at the University of Connecticut is disseminating retrospective and selective dissemination of information (SDI) of the ERIC file, including the Abstracts of Instructional Materials (AIM) and Abstracts of Research Materials (ARM). Users of this search service will be given assistance in instructing and implementing searches by professional strategy designers experienced with the ERIC file. Prices for educational and non-profit users depends on the type and number of searches. Customized, individual searches are $50 for retrospective or four quarterly SDI updates with no limit on the number of ERIC thesaurus descriptors and up to 500 citations and abstracts. Bulk rates are available for clients who design their own search strategies. Search output includes document number, title, author, citation, abstract, and index terms, with search turn-around time averaging one week. Further information may be received from:

Dr. Daniel U. Wilde, Director
New England Research Applications Center
Mansfield Professional Park
Storrs, CT 06268
(203) 429-6421

Thistledew Forestry Camp Used for Challenge Program

A need to find effective alternatives to institutionalizing delinquents led to the Challenge Program operated by the Minnesota State Department of Correction's **Thistledew Forestry Camp at Togo.** The program has been supported by a grant from the Louis and Maud Hill Family Foundation.

The traditional response to overpopulation of correctional institutions has been either to overcrowd existing institutions, build more expensive and often not-too-effective buildings and at times encourage unwise use of probation and parole. The Department of Corrections has attempted, through this program, to attack the problem both by intensive noninstitutional programs and by creating short-term, high-impact programs that will use existing institutions more effectively.

The Thistledew Forestry Camp, located in a remote wilderness area, has the capacity for about 50 boys. Ordinarily they stay from six to eight months, learning how to survive in the wilderness through classes, camping, physical development, health care, ecology, skiing, or canoeing. In addition, they have regular academic classes.

At the end of the stay, there is a week-long trip into remote country. The objective is to help boys with low self-esteem discover some strengths and ruggedness in themselves that they had not believed possible.

Publications of Interest...

Readers are reminded not to contact SMEAC for publications, but rather to place orders directly with addresses given. Materials listed as being available in **Research in Education** may be secured directly from ERIC Document Reproduction Service, but not from SMEAC.

A new booklet, **Environmental Impact Analysis: Philosophy and Methods,** is available free of charge from:

Miss Linda Weimer, editor
Sea Grant Publications Office
1225 West Dayton St.
Madison, Wisc. 53706

Single free copies of **Environmental Action Papers No. 1, Energy** are available from:

Environmental Action of Colorado
1100 14th Street
Denver, Colo. 80202

Rick Speed, director, also notes that other papers in the series are forthcoming, among other projects being carried on by the organization.

The Spoils of Progress, Environmental Pollution in the Soviet Union, by Marshall Goldman, presents the facts concerning the myth that the socialist state takes care of its resources for the public good. The 378-page volume is available for $7.95 from:

The MIT Press
Massachusetts Institute of Technology
Cambridge, Mass. 02142

SMEAC PREPARES AIR POLLUTION DIRECTORY

In coordination with the Environmental Protection Agency's Institute for Air Pollution Training, ERIC/SMEAC is preparing a directory of instructional materials and resources in the field of air pollution control. The directory will be subject to continual expansion and will identify those techniques which can be used in the training of personnel involved in air pollution control. These materials will cover a broad spectrum of topics: from control equipment to land-use planning, from law to chemical analysis of pollutants, encompassing a wide variety of media—films, programmed texts, simulation games, printed materials, etc.

The common denominator for all entries will be a concern with some facet of air pollution and its control. The directory is planned for university faculty and students with interests in the environmental areas, as well as to trainers and trainees already involved in air pollution control.

The directory will be available early in 1973; printed copies will be available at $3.50 from the Center for Science and Mathematics Education at The Ohio State University, and microfiche copies from ERIC Document Reproduction Service.

SMEAC

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Dr. John H. Wheatley
Research Associate
Environmental Education

**ERIC Information Analysis Center
for Science, Mathematics, and
Environmental Education
400 Lincoln Tower
The Ohio State University
Columbus, Ohio 43210**

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ERIC

COMPILATIONS OF ENVIRONMENTAL EDUCATION DOCUMENTS READIED

ERIC SMEAC and the Center for Science and Mathematics Education at The Ohio State University are cooperating with Education Associates, Inc., of Worthington, Ohio, and Microfiche Publications, a division of Microfiche Systems Corporation of New York, to produce compilations of ERIC abstracts and a series of micro-libraries containing microfiche of selected documents listed in the compilations.

Three compilations are scheduled for availability in May, one each devoted to science education, mathematics education, and environmental education. Each compilation will include a comprehensive collection of abstracts of documents that have been announced in **Research in Education** for 1966-72. Also included in each will be an author index and a subject index.

These compilations will enable rapid manual searches of the ERIC data base, which includes research reports, instructional materials, teacher guides, curriculum guides, and resource materials. The science education compilation contains more than 4000 abstracts, the mathematics education compilation more than 2000 abstracts, and the environmental education compilation approximately 2000 abstracts. Users who have tried the preliminary publications feel that the compilations are "must" items for school libraries and extremely useful to individuals. The cost for each of the publications is less than two computer searches.

Prior to June 1, compilations may be ordered at prepublication rates, with substantial savings. Titles and prices are:

Science Education, A Bibliography of Abstracts from **Research in Education,** 1966-1972. Price after June 1, $22.00. Prepublication price, $18.00.

Mathematics Education, A Bibliography of Abstracts from **Research in Education,** 1966-1972. Price after June 1, $18.00. Prepublication price, $15.00.

Environmental Education, A Bibliography of Abstracts from **Research in Education,** 1966-1972. Price after June 1, $15.00. Prepublication price, $13.00.

Requests for orders or further information regarding the compilations should be directed to:

Education Associates, Inc.
P.O. Box 441
Worthington, OH 43085

Microfiche micro-libraries will also be available for selected documents from each of the compilations. The compilations include indexes that can be used to search the micro-libraries by author, by subject area, or by ERIC document number. Four micro-libraries will be available for science education, four for mathematics education, and four for environmental education. For each area, there will be elementary school, secondary school, and higher education libraries. Each library will contain from 300 to 500 titles, including instructional materials, teacher guides, curriculum guides, and research reports of interest to that level of education. The price of each library will be under $200 (approximately $0.40 per title). Special prepublication rates on the micro-libraries will also be available through June 1, 1973.

Requests for orders and further information regarding micro-libraries should be directed to:

Mr. Arthur Kramer
Microfiche Publications
305 East 46th Street
New York, NY 10017

DENVER CONFERENCE TO FOCUS ON STATE E.E. PLANNING

Statewide planning for environmental education will be the focus of a conference during the third week in April in Denver, according to an announcement from **George Lowe** of the U. S. Office of Environmental Education. "This will be a working conference at which the assembled participants will distill their experience of the past two years and develop a manual for disseminating the best of these ideas, plans, activities, processes, and practices," Lowe stated.

The conference will be co-sponsored by the Center for Research in Education in Denver and USOE (EE). People in the states interested in past, present, or future activities related to statewide planning with respect to environmental education are invited to attend.

More information is available from:

Richard Rocchio
Center for Research in Education
1250 South Bellaire Street
Denver, CO 80222
(303) 759-0044

NSTA COMMITTEE PREPARES POSITION PAPER

Dr. Kenneth Dowling of the Wisconsin Department of Public Instruction chaired a meeting of the ad hoc Environmental Studies Committee of the National Science Teachers Association in Washington on February 9, 1973, for the purpose of establishing a position on the involvement of NSTA in environmental education. **Dr. Beth Schultz** of Western Michigan University, **Alan Sexton** of Project KARE, and **Dr. Robert Roth** of The Ohio State University were participating committee members. A report providing background philosophy, rationale, and recommendations was initiated for consideration by NSTA at its annual meeting in Detroit, March 30-April 3.

SE 016 988

TESC Approach Outlined At CCD, TETE Workshops

The Center for Curriculum Design, Evanston, Ill., and Total Education in the Total Environment, Wilton, Conn., are co-sponsoring eight regional workshops on the **Total Environment-School-Community** (TESC) approach to education.

Noel McGinnis, director of the Center for Curriculum Design, reports:

The TESC workshops stress strategies, techniques, and resources for the development of multi-disciplinary, community-oriented educational programs, in which learners do direct research, study, and problem-solving in the social and natural environments of their immediate community. While conventional approaches to environmental education tend to be limited by the assumptions

—a. that environmental education is a seperate concern, to be dealt with via an appendage to the existing curriculum;

—b. that environmental education is adequately served by the creation of specialized curriculum materials;

—c. that environmental education is a form of ecology or nature study;

—d. that environmental education can effectively take place in situations removed from the particular environments under consideration;

the TESC approach assumes

—a. that environmental education is a total concern, to be implemented in the total curriculum;

—b. that environmental education is adequately served by the creation of a general strategy of environmentalizing all teaching/learning procedures;

—c. that environmental education is a perspective which pervades all forms of study;

—d. that environmental education is most effective only in the context of direct involvement within particular environments under consideration.

Up to 100 persons, from state education offices, teacher education schools, elementary and secondary schools, junior and senior colleges, community organizations, and current environmental education projects, attend each of the three-day workshops. There is no fee for the workshops, though participants are on their own budgets for room, board and travel.

Participants in each of the workshops receive feedback from the entire series of workshops, and will have the opportunity to participate in a continuing environmental education network of eventually-international scope. A total of eight workshops will be held throughout the U. S.; already, workshops have been held in Evanston, Seattle, Oakland, Austin, and Lincoln. Forthcoming workshops are:

April 11-13: in **Atlanta**, for Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee;

May 9-11: in **Washington, DC**, for Delaware, Maryland, Pennsylvania, Virginia, West Virginia and District of Columbia;

June 6-8: in **Boston**, for New Jersey, New York, Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

The Boston workshop will have 25 European participants, through funding made possible by the General Service Foundation, in anticipation of a series of international workshops to be initiated later this year.

Further information about the workshops and/or TESC may be obtained from:

Center for Curriculum Design
P. O. Box 350
Evanston, IL 60204

E.E. Certification — A Rare Requirement

Only one state of 47 responding indicated the current existence of a separate certification for secondary teachers in environmental education, according to a survey conducted during late 1972 by **Dr. Sigmund Abeles**, consultant in science education for the Connecticut State Department of Education and that state's representative to the ERIC/SMEAC network of environmental education coordinators.

Wisconsin reported such a requirement. No state indicated a separate certification in environmental education at the elementary level.

One state—Nevada—indicated that an environmental education certification is currently in the process of preparation, while five others did not give a definite response to the question. Seven states indicated that they favored such certification, 23 were opposed, and 17 did not give a classifiable response.

Three states indicated that a separate course or program in ecology or environmental education is presently a certification requirement for "another elementary area," while two made a similar response with respect to "another secondary area." Five states projected the inclusion within the next three years of a separate course or program in ecology or environmental education as a requirement for certification in another subject area, while 33 did not project such a requirement and nine made noncommital responses.

Dr. Abeles received information from the certification offices of 46 states, plus Puerto Rico. States not responding included Alaska, Indiana, Michigan and Ohio.

A complete report of the survey will be printed in a summary of state books information gathered by the U. S. Office of Environmental Education and reviewed by SMEAC's network of state coordinators for environmental education, scheduled for publication by SMEAC during Summer 1973.

Media

Population and the American Future is the official film version of the Report of the Commission on Population Growth and the American Future. Produced by **Craig Fisher** and narrated by **Hugh Downs**, the film explores the evidence used and recommendations offered by the commission. The 60-minute color film, in two 30-minute segments, is available free for classroom use from:

Population Affairs Film Collection
National Audio-Visual Center (GSA)
Washington, DC 20409

Indicate preferred showing date with two alternate dates and allow two months for delivery.

SMITHSONIAN INITIATES POPULATION ANALYSIS

The **Smithsonian Institution's** Interdisciplinary Communications Program has launched an International Program for Population Analysis, aimed at promoting social science studies in the analysis and evaluation of population dynamics and policies, particularly in the Third World.

Principal features of the program are:

—Small work agreements allowing individual investigators in the social sciences and humanities around the world to do research on social science aspects of world population problems related to policy, involving subventions of up to $50,000; and

—A communications system linking these investigators, the world's social science and humanities research community, and policy-makers concerned with population problems.

The communications system will include small workshop/seminars to bring together scholars, government personnel, decision-makers, and other specialists to discuss problems and findings, and to generate new ideas for study and for formulating and implementing population policies. The results of these meetings will be published in research report form.

Further information may be obtained from:

Interdisciplinary Communications Program
Smithsonian Institution
1717 Massachusetts Avenue, NW
Washington, DC 20036

International Conference Plans Water Theme

"Water for the Human Environment," with international scope, has been announced as the theme for the First World Congress on Water Resources, to be held in Chicago, September 24-28, 1973, under sponsorship of the International Water Resources Association.

Intention of the congresses is to establish an international forum on a biennial basis to bring together planners, administrators, managers, industrialists, lawyers, engineers, educators, physicists, oceanographers, and others interested in water resources.

Among areas for which papers have been particularly invited are:

World-wide environmental problems relating to water, including quality, quantity, and socio-economic problems;

International cooperation and coordination in development of water resources for preservation of the human environment,

Innovative approaches to solving international environmental water problems, including new concepts in planning and management and new technology;

Problems of practical and professional natures of international importance.

Further information may be obtained from:

Dr. Gabor M. Karadi, Secretary General
IWRA
Science Complex Building
University of Wisconsin
Milwaukee, WI 63201

Publications of Interest . . .

Environmental Education Group, a non-profit foundation, offers various educational and consultant services, along with materials for environmental education. Materials include **Technology vs. Environment**, a set of seven 22x28 inch posters, at $7 per set plus $1 postage, and **Pollution Watch**, published 12 times yearly for $5. Contact:

Environmental Education Group
6731 Lurline Avenue
Canoga Park, CA 91306

Copies of a study-discussion guide, **Environment, "Progress," and Quality of Life**, are available at $2 a copy from:

Bureau of Discussion
Indiana University
Bloomington, IN 47401

Qualified persons seeking employment in environmental areas may find use of a bulletin published by **Ecology Placement Service**. Job openings described in the publication generally are geared to experienced personnel (biologists, foresters, and the like), though some are open to beginners. Those interesed should contact:

Ecology Placement Service
1711 Lincoln Avenue
St. Paul, MN 55105

Blueprint for Survival, first published in England, includes a strategy for change that would be global in implication, rather than simply "viewing with alarm."

The 189-page volume, assembled by the editors of **The Ecologist** with the support of 33 eminent scientists, contains chapters dealing with ecosystems, social systems, population and food supply, and non-renewable resources. It is available at $4.95 from:

Houghton Mifflin Co.
2 Park Street
Boston, MA 02108

An exploration of earth's life systems and man's impact on his environment are provided in a boxed set of 70 skill cards for upper elementary and high school students, **Investigations in Ecology**, by Beth Schultz and Phyllis Marcuccio. The cards, each focusing on a major ecological concept and detailing a specific investigation, are grouped into three categories: People and Environment; Plants, Animals, and Environment; and Earth: Life's Environment. The boxed set may be secured for $9.95 from:

Charles E. Merrill Publishing Company
1300 Alum Creek Drive
Columbus, OH 43216

Environmental Education/Facility Resources, a report developed cooperatively by Educational Facilities Laboratories, the National Education Association, and the National Park Service, describes and pictures many types of environmental centers. It is available at $2 per copy from:

Educational Facilities Laboratories
477 Madison Avenue
New York, NY 10022

The Center for Curriculum Design has published **You Are an Environment: Teaching/Learning Environmental Attitudes,** a 95-page booklet edited by Noel McGinnis aimed primarily at pre-service and in-service teacher education. It seeks to develop a planetary perception within which to pursue education that is in interaction with environments rather than detached from them. Copies are available at $2 each, with discounts for multiple-copy orders, from:

Center for Curriculum Design
P.O. Box 350
Evanston, IL 60204

A 15-to-20 hour course on materials recycling, teaching junior high school students about environmental problems and solutions, is developed in **Environmental Action: Recycling Resources**. It includes a teacher's manual, student handbook, two color filmstrips, a record containing the soundtrack for both filmstrips, and a class simulation game, "Ecopolis." The course retails for $12.50 plus shipping, from:

Office of Environmental Affairs
Continental Can Company
633 Third Avenue
New York, NY 10017

An annotated bibliography of selected articles, reports, books and documents presenting discussions of or viewpoints on the formulation of international environmental policy, with special emphasis on U.S. thought, has been compiled by **John Dinsmore**, University of Wisconsin-Green Bay Librarian, and can be secured directly from him at 25 cents per copy.
Address:

UWGB Library
Government Publications Department and
Center for
The University of Wisconsin—Green Bay
Green Bay, WI 54302

Seventy-five selected papers from past, present and future issues of the **Journal of Environmental Education** have been selected for inclusion in **Interpreting Environmental Issues: Research and Development in Conservation Communications**, a February 1973 publication. This "first book devoted exclusively to the theory and practice of environmental protection and use" is edited by Clay Schoenfeld, with Allan Murray, William Witt, John Ross, and Keith Stamm. It is available at $9.90 per copy from:

Dembar Educational Research Services, Inc.
Box 1605
Madison, WI 53701

Environmental Periodicals: Indexed Article Titles provides immediate access to tables of contents pages of about 300 current environmental journals, domestic and foreign. The publication has been announced for eight issues per year, and will also produce an annual index cumulated from the eight issues. The annual index will include a permuted keyword subject index and an author index, to facilitate retrieval of the nearly 10,000 journal article titles anticipated for each volume. Inquiries regarding subscriptions should be directed to:

Environmental Studies Institute
International Academy at Santa Barbara
Riviera Campus
2048 Alameda Padre Serra
Santa Barbara, CA 93103

A monthly newsletter is included in the $10 charter membership fee for the **American Society for Ecological Education**, an organization whose purpose is to introduce ecological knowledge and concern into school curricula. **Col. David Scott**, NASA astronaut, is honorary president; **Mrs. Norman Vincent Peale** is honorary chairman. Persons interested should contact:

Dr. William L. Mayo, President
American Society for Ecological Education, Inc.
c/o Curry College
Milton, Mass. 02186

A new Environmental Protection Agency publication for young environmentalists, **Your World, My World**, is a 48-page, full-color booklet explaining environmental problems and how EPA attempts to deal with them. It appears to be targeted at upper elementary students.

The booklet, Stock Number 5500-00079, is available at $1.50 per copy from:

Superintendent of Documents
U. S. Government Printing Office
Washington, DC 20402

Higher Education Notes . . .

The Institute of Environmental Sciences at **Miami University** offers an interdisciplinary program stressing problem solving and community service, providing students with real world experiences in the environmental area. This program leads to the degree of Master of Environmental Science, and allows for an area of specialization in a student's chosen field, such as water resources, urban planning, population studies, ecosystem analysis, environmental education, etc. Persons interested in more information should contact:

Dr. C. E. Barthel, Jr., Director
Institute of Environmental Sciences
Miami University
Oxford, OH 45056
(513) 529-2732

The environmental earth sciences program at **Stanford University** has drawn nearly 200 students during the past year, reports Professor Irwin Remson, chairman of the program in the Department of Applied Earth Sciences. The recently-instituted program was designed to provide students with the capabilities for combining knowledge of the environment with competencies for planning, management, and engineering.

A Department of Environmental Studies has been initiated by **Trinity University**, San Antonio, Texas, offering a Bachelor of Arts degree in environmental studies. The two full-time faculty offer a 17-course program, all courses being multi-disciplinary new formulations. More information may be obtained from:

Geoffrey E. Goring, Professor
Environmental Studies
Trinity University
715 Stadium Drive
San Antonio, TX 78284

A College of Urban Development has been created at **Michigan State University**. The new academic unit will include the Departments of Urban and Metropolitan Development and of Race and Ethnic Studies. Two additional divisions—a center for research and an urban extension service—are planned for the future, pending availability of funds and an investigation of possible cooperation with other universities.

A four-to-five quarter program concentrating on field ecology, outdoor education and related problems of environmental dynamics and deterioration leading to a Master of Science Teaching in Environmental Education has been announced by **Antioch Graduate School of Education**. For more information, contact:

Director of Admissions
Antioch Graduate School of Environmental
Education
Box 128
Harrisville, NH 03450
(603) 827-3076

USOE(EE), IEE BEGIN WATERSHED CONFERENCES

A series of Heritage 76 Watershed Conferences, co-sponsored by the Institute for Environmental Education and the U. S. Office of Environmental Education, has been announced by USOE(EE). Among those already scheduled are:

March 26-28: White River Heritage 76, in Arkansas;

March 30-31: Potomac Heritage 76, Prince William Forest, Virginia;

April 27-29: Tennessee Valley Heritage 76, Tremont, Tennessee;

Mid-May: Delaware and Susquehanna Heritage 76, Digman's Ferry, Pennsylvania;

June: at Land Between the Lakes, Kentucky.

Other conferences in the series, which is part of a national demonstration project, are in planning stages. For more information, contact:

Joseph Chadbourne
Institute for Environmental Education
Cleveland Health Museum
8911 Euclid Avenue
Cleveland, OH 44106

UNESCO Commission Sets Population Task Force

A two-year program to focus attention on the world population problem will be guided by a special Population Task Force within the U. S. National Commission for UNESCO, according to an announcement from **John E. Upston**, commission executive secretary. Funded by a grant from the General Service Foundation of St. Paul, MN, the program will be in support of UNESCO's world population programs.

Objectives of the task force will be two-fold: to coordinate with UNESCO national commissions the formulation of projects in the areas of population education, mass communication, and involvement of the arts in population awareness, and to focus greater attention in the United States on the observance of the 1974 World Population Year, as designated by the UN General Assembly.

The U. S. initiative is in response to a resolution adopted by the UNESCO General Conference calling on **Dr. Rene Maheu** of France, director-general of UNESCO, to give high priority to population problems. In carrying out its population program, the U. S. National Commission will call upon the professional population resources of the U. S. private sector to help develop the population capabilities of UNESCO. The U. S. Task Force will establish and maintain a dialogue on population matters with national commissions in other countries, encouraging the activities of non-governmental organizations and the private sector.

Co-chairmen of the Task Force are **Dr. J. Mayone Stycos**, chairman of the Department of Sociology and director of the International Population Program at Cornell University, and **Dr. Roger Revelle**, director of the Center for Population Studies at Harvard University. **John F. Wood**, a former consultant to both the Population Crisis Committee and the International Planned Parenthood Federation, has been named executive secretary of the task force.

Systems Analysis Undertaken By International Institute

An International Institute of Applied Systems Analysis focusing on the complex problems resulting from the process of industrialization has been established in Vienna, according to an announcement by **Philip Handler**, president of the National Academy of Sciences printed in the December 1972 issue of **Journal of College Science Teaching.**

Representatives of scholarly institutions in 12 nations met at the Royal Society in London to work out final organizational details, select a site, elect officers, and appoint a director. They elected **Jermen M. Gvishiani**, representing the Academy of Sciences of the U.S.S.R., to a three-year term as chairman of the institute council. **Howard Raiffa**, professor of managerial economics at Harvard University, was appointed director.

Other nations represented include Canada, East and West Germany, Bulgaria, France, Japan, Italy, England, Czechoslovakia, and Poland.

The institute will be interested in problems of a global nature and those that would benefit from a systematic comparison of the remedies now being attempted by various nations. The institute will also attempt to develop improved methods for analysis of such problems by mathematical modeling so that they become more amenable to management.

Projects under consideration fit into four categories—environmental systems, health care systems, municipal services systems, and large engineering design systems.

A primary task may be concerned with energy: an analytical study of short- and long-range projections of the world supply of energy resources and demands for energy, dynamic substitutions among energy sources, future technologies, and hazards of each source. Other environmental subjects already discussed include water resources, air pollution, agricultural production, recycling of materials, prediction and partial control of natural disasters, and preservation of ecological balance.

Northern Illinois Schedules Foreign Studies Course

The Department of Outdoor Teacher Education, Northern Illinois University, has scheduled a foreign studies course, **Outdoor Education in Canada: Practices and Programmes**, for June 18-July 27, 1973. The six-weeks tour is open to graduates, undergraduates, and qualified auditors. Six semester hours credit may be earned.

The tour group will travel by bus to study formal and non-formal programming in Ontario and Quebec, with emphasis upon gaining a broad view of various components of outdoor education in Canada. Visits will be made to resident centres, field day centres, university and school sites, conservation and natural science centres, forest stations, and cultural and historical attractions. Personnel from the Ministry of the Environment and other ministries in Ontario will meet with the group.

Morris Weiner, professor of outdoor education, will serve as tour director, assisted by **El East**, secondary science teacher from Ft. Erie, Ont. Further information concerning application and registration may be obtained from:

International Programs Office
Northern Illinois University
DeKalb, IL 60115

C.E.A. 1973 CONFERENCE TO BE HELD IN KENTUCKY

August 1973 will find the campus of Murray State University in Kentucky the "in" place for environmental and conservation educators, reports **Lynn Hodges**, Kentucky state coordinator for environmental education. Murray has been selected as the host campus for the 1973 national conference of the Conservation Education Association.

"The program promises to be one of the most exciting and unique in recent years, with outstanding guest speakers, demonstrations of projects, and field experiences in exemplary sites. Included on the agenda are visits to outdoor labs sponsored by the state government and to Land Between the Lakes, sponsored by the Tennessee Valley Authority as a national demonstration area in recreation and environmental education. The broad scope of interrelated projects sponsored by various agencies and organizations reinforces the basic concept underlying the conference theme of interdependence and cooperation being the key to successful programs in environmental education," Hodges stated.

Conference dates are August 12-16. For additional information, contact:

Wayne Williams
Department of Education
Murray State University
Murray, KY 42071

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Dr. Robert W. Howe
Director

Dr. Stanley L. Helgeson
Associate Director
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Associate Director
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Research Associate
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"Alliance for E.E." Forms

Currently in the formative stages is an **Alliance for Environmental Education** which seeks to bring under one umbrella a number of diverse groups whose area of common concern is environmental education.

The Interim Coordinating Committee of the alliance met in Washington, D.C., on March 1, 1973, to develop plans and strategies. Presented for consideration of those present were tentative articles of incorporation and by-laws.

Initial impetus for the development of the alliance surfaced at the September, 1972 Wingspread Conference, sponsored by the Conservation Education Association in cooperation with the Johnson Foundation, at Racine, Wisconsin. Attendees at that conference included representatives of Alaska State Department of Education, American Association of Health, Physical Education and Recreation, American Association of State Colleges and Universities, Boy Scouts of America, Citizens Advisory Council on Environmental Quality, Concern Inc., Conservation Education Association, Conservation Foundation, Girl Scouts of America, Isaak Walton League of America, League of Women Voters, Minnesota Environmental Science Foundation, National Association for Geographic Education, National Association of Conservation Districts, National Education Association, National Science Teachers Association, Natural Resource Council of America, Soil Conservation Society of America, U.S. Department of Interior, U.S. Environmental Protection Agency, U.S. Forest Service, U.S. Office of Environmental Education, U.S. Soil Conservation Service, and University of Wisconsin-Green Bay.

Interim executive director of the alliance is **William H. Lynch**, UW-GB. Joining Lynch as members of the initial board of directors are **Ruth C. Clusen** of League of Women Voters and **Robert S. Cook**, UW-GB. Principal office is:

Alliance for Environmental Education, Inc.
805A Library Learning Center
University of Wisconsin-Green Bay
Green Bay, WI 54302

E.E. Coordinator Board Formed

An advisory board of state coordinators for environmental education has been selected from among the members of ERIC/SMEAC's network of coordinators, and will serve as a steering group in determining how SMEAC and the state coordinators may best function in complementing each other's activities and meeting each other's needs. Members of the group include: **Mrs. Eleanor Bennett**, Pennsylvania; **Dr. Edward Dayton Jr.**, Louisiana; **Mrs. Ethel Hackney**, District of Columbia; **Gene Knight**, Ohio; **Howard Potts**, Oklahoma; **Rudolph J. H. Schafer**, California.

Conservation Foundation Hosts Environment Forum

An Environment Forum under the sponsorship of the Conservation Foundation considering the topic *Support for Environmental Education: Where Do We Go From Here?* was held in Washington, DC, on March 2, 1973.

Leading environmental educators and practitioners heard reports from Congressman **John Brademas** (D-Indiana), Chairman of the House of Representatives Select Subcommittee on Education and co-sponsor of HR 3927, which seeks to continue the Environmental Education Act for three more years; **Ms. Linda Lee**, presenting (for Walter Bogan) the accomplishments of the U.S. Office of Environmental Education; and **Richard Myshak**, former member of the National Advisory Board for USOE(EE), indicating that support for the Environmental Education Act by HEW/OE has been "glaringly weak."

Reactors included **Dr. Salvatore Natoli**, associate director of the Association of American Geographers;**Dr. Robert Cook**, professor of Environmental Education at University of Wisconsin at Green Bay; and **Ms. Bickley Dodge**, education coordinator, Zero Population Growth. Discussion by participants followed. Proceedings of the meeting are being developed, and will be available from:

The Conservation Foundation
1717 Massachusetts Avenue, N.W.
Washington, DC 20036
(202) 265-8882

ERIC/SMEAC was represented at the meeting by **Robert W. Howe** and **Robert E. Roth.**

Foundations Support Federation

An *International Federation of Institutes for Advanced Study*, designed to more closely link the natural sciences with the humanities and social sciences as a means of coping with increasing global problems, has been established in Stockholm through financial assistance from the Nobel and Rockefeller Foundations.

"The fundamental idea behind IFIAS is to bring together a few outstanding research institutions of many disciplines from around the world to apply their unique talents to carefully-selected global problems," according to **Paul M. Frye**, president and director of the Woods Hole Oceanographic Institution, one of about 20 charter members.

The Federation's first board chairman is **Nils Stahle**, retiring director of the Nobel Foundation. Its first executive director is **Sam Nilsson**, former corporate staff member and manager, Research and Development Incentive Group, Stockholm.

SE 017 938

Funding to Local Schools Awarded Through Title III

Title III of the Elementary and Secondary Education Act provides federal funding to local schools for the purpose of stimulating innovation and change in educational practices. Since the earliest years of ESEA, which became law in 1965, Title III has funded environmental education programs throughout the country.

The state of **New Jersey** is a notable example of the early and continuing support of environmental education under Title III. In that state, a number of projects initiated in the first years of the Title III program constituted the background for the creation in 1967 of a State Council for Environmental Education, also a Title III effort. This statewide planning and research project was mandated to inventory all environmental education in the state, to assess the Title III environmental projects then operating in New Jersey, to determine how inner-city youth might best be served by environmental education, to create an awareness of the value of environmental education in the general public, to develop an evaluation instrument for environmental education programs, and—most importantly—to design a master plan for statewide environmental education. When federal funding for the Council came to an end in 1970, a statewide master plan had been prepared, and a five-year program of implementation began in 1971 under a new grant from Section 306 of Title III, together with financial resources from the state's newly-enacted Environmental Education Act.

Because Title III projects were early on the scene in environmental education, they have in several states become the nucleus for statewide curriculum development in this field. An environmental project in one **Maine** coastal town expanded to a program designed to encourage and assist communities throughout the state in developing their own environmental education programs. In **Ohio,** a Title III grant funds the Center for the Development of Environmental Curriculum, which is creating curriculum and encouraging and assisting communities throughout the state to adopt it.

In other states, though the Title III projects may not formally be part of a unified single thrust, each project serves as a model of an approach to environmental education and is visited and copied by other schools and school districts. Some states have funds and procedures for supporting the model school's role as a demonstration site and also for assisting the adopting schools by compensating them for released teacher time and travel costs. **California** makes "incentive grants" to Title III projects for which federal funding has terminated, for purposes of local expansion and adaption and statewide dissemination.

The major portion of Title III funds—85 per cent—is allocated to the states on the basis of school-age population and administered through state departments of education, which in turn receive proposals for projects from local education agencies. All projects are therefore locally designed and initiated, and they must be based upon an assessment of learner needs which indicates the absence of, or need for improvement in, educational programs in various curriculum areas.

The local base of Title III projects has been of particular importance in environmental education, since it has encouraged educators to use the immediate environment as a resource. The school grounds themselves have in many cases become a major teaching tool. Even those Title III programs which are statewide in scope place major stress on the need for each school and community to canvass, catalog, and utilize its own resources in teaching about the environment.

The local orientation of Title III projects has also been reflected in the curriculum materials which projects have created. The earliest Title III environmental curriculum materials were evaluated and the best compiled as an ERIC/SMEAC effort*, and materials of increasing sophistication have been created by many projects since. Also, moving beyond curriculum materials as such, projects are developing instruments for measuring the effects of their programs in terms of student knowledge of attitudes about the environment.

In addition to the 85 per cent of Title III funds which are administered by the states, 15 per cent are retained in the control of the Commissioner of Education and administered directly by the Office of Education. The projects funded under this section, known as the Commissioner's discretionary portion or Section 306, are intended to address problems common to all or many of the states.

In 1971, sixteen environmental education projects were funded by USOE under Section 306, to serve as national models. Each was planned to continue for three years; total funding assigned to the projects in fiscal 1972 was $2,828,000. Criteria developed by the Office of Education for model environmental programs include:

—Environmental education is defined as **people-centered,** as opposed to conservation education;

—The student's **immediate environment** is the basis of his study, and both urban and rural environments are examined;

—There is **student and community involvement** at all stages of project development;

—Learning is on a **discovery-inquiry, problem-solving** model;

—Curriculum is **interdisciplinary;**

—Programs lead to **student responsibility** for some aspects of environmental control and improvement.

Under this program, a project in **California** is creating an educational development model for environmental studies which includes design, development, and evaluation of learning activity modules for an inter-disciplinary curriculum;

A **Florida** project is combining existing curriculum materials into a sequential working package, with concepts pinpointed by grade levels;

An **Illinois** school district is creating an environmental curriculum model in a conceptual framework;

In **Kansas,** a project is developing curriculum materials by performance-contracting with teachers to write teaching modules and test them in their own classrooms;

Another **Kansas** project is building curriculum around three broad topics: planning for increased population, pollution, and the balance of nature;

A Wyandotte, **Michigan,** program aims to create a process model for continuing creation of environmental curriculum materials by teachers and students;

A **Minnesota** program encourages communities to develop study materials which focus on their own communities through a curriculum development model which reflects the major types of communities in the state;

A Westchester County, **New York,** project which serves an urban-suburban area adjacent to New York City has a multifaceted, action-oriented program which includes the setting up of a student environmental monitoring and data collection network;

In **North Carolina,** a project defines "environment" as everything which influences the way people live and stresses student self-directedness and involvement within the community;

A regional effort at urban-suburban cooperation in **Pennsylvania** solicits proposals for investigative environ-

This article concerning environmental education activities under Title III, ESEA, was prepared by **Virginia Robinson**, editorial assistant, National Advisory Council on Supplementary Centers and Services, at the request of SMEAC's environmental education staff.

mental study from schools and makes small grants to them;

Another **Pennsylvania** project is developing an instructional center in a state forest and dealing with five major curriculum areas: water, earth, biology, meteorology, and heritage;

A **South Carolina** center is developing a comprehensive environmental education program for all grade levels;

A **Washington** state project has developed a cooperative program in which urban and suburban school children come together in environmental studies;

A master plan for environmental education in the Milwaukee, **Wisconsin**, schools has responsibility for developing an environmental education curriculum with a leadership group of teachers constituting a cadre of change agents in the schools;

In **Wyoming**, a project is based on experiences in the natural environment with curriculum dealing at all levels with man's relationship with his surroundings, incorporating questions of resource management and depletion, transportation, technology, and planning.

Title III of the Elementary and Secondary Education Act, unlike any other titles of that legislation, is not targeted to any one curriculum area or student population. Its programmatic flexibility makes it possible for Title III projects to address any educational need as it arises. In the field of environmental education, this facility for response has been of particular value.

**A Review of Title III-Supported Materials and Programs Related to Environmental Education and Conservation Education* is now in final stages of production; its availability will be announced upon completion.

Many Title III projects have submitted to the ERIC system, documents which have been announced in **Research in Education**. Also, ERIC/SMEAC's **Directory of Projects and Programs in Environmental Education for Elementary and Secondary Schools** contains reports of many of the projects mentioned in this article, along with many others. Of particular interest to those wishing more information about Title III is the **Title III Quarterly** for Spring 1972, *Title III in Environmental Education*, which is available in hard copy or microfiche through Educational Document Reproduction Service as ED 068 274.

Edison Institute Sponsors Energy-Environment Game

An **Energy-Environment Game**, designed for use in junior and senior high schools, is being sponsored by Edison Electric Institute. Included in game materials are a filmstrip, cassette tape, teacher's guide, player's manual, 32 role profiles, site selection materials and background information.

A national field test is now underway in 800 classrooms; feedback will be utilized in determining availability of the game during the next school year. Edison Electric Institute has invited more trial teachers and classrooms, with a stipulation to report results. More information is available from:

Edison Electric Institute
90 Park Avenue
New York, NY 10016

Environmental Alert Network Involves Student Research

The **Smithsonian Institution** has begun development of an *Environmental Alert Network* involving thousands of students throughout the United States in which they will observe and document environmental events and communicate information to the Smithsonian's Center for Short-Lived Phenomena.

Information on events such as bird and fish kills, animal population increases, migrations or mortalities, oil and chemical spills, unusual defoliation, pesticide, herbicide, or other toxic substance contamination, and unusual atmospheric, marine, or land pollution is reported immediately to the Center. In the program, students receive event notification and information cards describing short-lived events taking place around the world.

Purpose of the program is two-fold, according to **John Whitman**, program manager:

—to develop a comprehensive monitoring network consisting of student observers who can report events occurring in their own areas, and

—to provide a continuous flow of current environmental information to thousands of students, giving them a reasonably comprehensive picture of environmental changes while the changes are actually occurring.

The Environmental Alert Network, which began formally on January 1, 1973, reported more than 40,000 student observers in all 50 states before March 1.

Group membership, of unlimited size, costs $15 annually. Each group is required to designate a sponsoring teacher or group member as the Event Report Coordinator; the coordinator receives an Environmental Alert Network **Handbook** which provides information on how the program works, what kinds of events should be reported, how these events should be observed, documented, and reported, how daily information reports will be sent to the group, and the purposes and scope of the program.

More complete information may be secured from:

Center for Short-Lived Phenomena
Smithsonian Institution
Office of Environmental Sciences
60 Garden Street
Cambridge, MA 02138
(617) 864-7911

SIPI Publishes "Environment"

Environment magazine is now being published by The Scientists Institute for Public Information, as part of a move by SIPI to increase its base as a national organization by offering a subscription to the magazine as an inducement to join.

Currently SIPI has two categories of membership—fellows, for members of the scientific community, and laymen. An increase in both categories is anticipated as the organization continues its evolution toward stronger commitment to environmental concerns.

Environment has been under the editorial direction of the St. Louis Committee for Environmental Information, but has been an official publication of SIPI since 1964. The publication originated as **Nuclear Information** in 1958, became **Scientist and Citizen** in 1963, and was renamed **Environment** in 1969.

SIPI membership costs $25 per year. In addition to a subscription to **Environment**, members receive the monthly SIPI newsletter and discounts on other SIPI publications and services. Subscriptions to **Environment** are $10 per year (10 issues) for non-members, with lower rates for multiple years and for students.

Media

Recordings of symposia held during the annual meeting of the American Association for the Advancement of Science, December, 1972 in Washington, DC, include several of potential interest to environmental educators. Among them are:

The New Urban Vision (128-72, one session); **Wolf Von Eckardt;**

Changing the Weather (129-72, two sessions); **Charles L. Hosler, Thomas Malone, Reid Bryson, J. Eugene Haas,** and others;

Temperate Climate Forestry and the Forest Ecosystem (131-72, two sessions); **Theodore C. Byerly, Gene E. Likens, F. Herbert Bormann, William H. Smith, T. C. Nelson, Arnold Bolle, George Staebler,** and **Donald Dahlston;**

Must We Limit Economic Growth? (134-72, four sessions); **Edward F. Denison, Dennis L. Meadows, S. Fred Singer, Chauncey Starr, Marc Roberts,** and others;

New Approaches to Global Weather (138-72, one session); **Walter Orr Roberts, Philip E. Merilees, Robert W. Stewart, Edward N. Lorenz,** and **Eugene W. Bierly;**

Man-Environment Relations and Health (140-72, four sessions); **Aristide H. Esser, Virginia R. Hannon, Charles Ferster, Edwin Williams, William Ittelson, Dorothea Leighton, Viola Bernard,** and others;

Limits to Growth of Technology (143-72, one session); **Chauncey Starr, Richard A. Carpenter, Roy P. Jackson, Arthur Kantrowitz, S. Fred Singer, W. Hunter II,** and **Glen P. Wilson;**

. . . and shall we have Science for ever and ever? (146-72, one session); **Stephen Toulmin;**

Humanizing the Earth (147-72, one session); **Rene Dubos.**

Recordings are available as 5-inch open reels (3¾ i.p.s. for standard machines) or as cassettes. Prices for a single-session symposium and for the first session of a multi-session symposium are $15 each; additional sessions of multi-session symposia are $12 each. Each session lasts about three hours.

Orders, accompanied by money order or check made out to AAAS, may be placed with:

American Association for the Advancement
of Science
Department MV
1515 Massachusetts Avenue, N.W.
Washington, DC 20005

Another set of audio tapes, in this case developed from presentations delivered at the National Science Teachers Association annual convention in March in Detroit, also includes environmental topics. Among them are a series entitled *The Energy Crisis,* and another on the topic, *Environment and Man.* The cassette tapes cost $5 each, with reduced rates for complete sets. More information may be found in the March, 1973 issue of **The Science Teacher,** or can be obtained from:

NSTA Audiotape Program
c/o Current Information Associates, Inc.
P. O. Box 23
Hyattsville, MD 20781

A series of 51 super-8 mm. film loops on ecology and the environment is available from Hubbard Scientific Company. They are organized into ten sets covering scientific principles, technological influences and social implications of ecology and environmental problems. More information may be obtained from:

Hubbard Scientific Company
Department ENL
2855 Shermer Road
Northbrook, IL 60062

H.E.W. Releases "Limits" Response

A two-part report on possible government action in response to *The Limits to Growth,* the Club of Rome-sponsored computer extrapolation of continued growth in population, resource usage, capital index, agricultural capital index, and pollution, has been issued by The Department of Health, Education, and Welfare. The HEW report was initiated at the direction of **Elliot L. Richardson** during his tenure as HEW secretary, and includes "A Report on Measurement and the Quality of Life" and "The Implications for Government Action of *The Limits to Growth.*"

Among conclusions presented in the HEW report are that there is "no need for drastic government action to curtail growth to prevent ecological catastrophe, and that infringements of human freedom by strict no-growth policies would probably be overwhelming," and "that there is no immediate prospect of a dramatic breakthrough in achieving such measurement (of the overall condition of society by use of social indicators), and that realistically, only gradual improvements in measuring particular problems such as health and environment can be expected," to quote a HEW news release.

Secretary Richardson referred to the reports as "tentative and exploratory," and indicated that they are being made available "to further additional analysis and exploration."

Copies of the study are available from:

Office of Public Affairs
Department of Health, Education, and Welfare
Room 5541, HEW North Building
330 Independence Avenue, S.W.
Washington, DC 20201

RIE, CIJE Prices Increase

Changes in the prices of subscriptions to **Research in Education** and **Current Index to Journals in Education** have been announced. **Research in Education** (12 issues per year) is now $38, domestic; $47.50, foreign. Single copies are $3.25 each. (Address: Superintendent of Documents, Government Printing Office, Washington, DC 20420).

Current Index to Journals in Education (12 issues per year) is now $44, domestic; semi-annual and annual cumulative indexes, $45. Single copies are $3.70. Foreign subscriptions have postage added. (Address: CCM Information Corporation, 866 Third Avenue, New York, NY 10022).

"E.E. Report" Now Published

A monthly eight-page newsletter, **Environmental Education Report,** made its first appearance in March 1973. Published by Environmental Educators, Inc., the newsletter highlights current news, feature articles, sources of information and materials, and other material of potential interest to those involved in environmental education. **William J. Kardash** is publisher, and **Anne Adamcewicz** managing editor.

Subscription price is $25 per year, with reduced rates for multi-year commitments. Address is:

Environmental Education Report
1621 Connecticut Avenue, N.W.
Washington, DC 20009

A set of 105 slides (35 mm.) illustrating the effects of air pollution on plant life and aiding identification of pollutants that harm vegetables and fruits, field crops, and ornamental plants and trees is available for $18.50 from:

Photography Division
Office of Information
U.S. Department of Agriculture
Washington, DC 20251

RIE Lists E.E. Documents

Among documents of potential interest to environmental educators abstracted in recent issues of **Research in Education** are:

The Crisis of Trust and the Environmental Movement, by William D. Ruckelshaus, Administrator of the Environmental Protection Agency, is the Alfred M. Landon Memorial Lecture, 1972. Focus is upon restoring man to a harmony with nature and his environment and insuring a clean and livable home for the posterity of all mankind as the goals we must strive for. ED 063 143, 14 pages;

A Review of Research Related to Environmental Education, by Robert Roth and Stanley Helgeson identifies known research, critically reviews it, and suggests areas for further research. Ninety-four studies are selected. ED 068 359, 56 pages;

National Environmental Study Area: A Guide, by the National Park Service, for those interested in establishing or receiving recognition for National Environmental Study Areas. All facets of NESA programming are described. ED 068 320, 61 pages. Also available in Spanish and French editions;

All Around You, An Environmental Study Guide, by the Bureau of Land Management, for elementary and junior high grades stressing nature and ecological relationships. Problem-solving activities go from the classroom and schoolyard to the town and rural areas. ED 064 131, 139 pages;

Social Studies Resource Units, by Clair Bemiss, gives inquiry questions, activities, resources, evaluation techniques, and teacher suggestions for the study of the interrelation of man and nature as part of the social studies curriculum for secondary school students. ED 067 304, 296 pages;

Handbook of Environmental Education Strategies, by the New York State Education Department, involves instructional strategies for integrating environmental concerns into subject matter areas. Concept-centered activity packages, common topics, printed media, community projects, readings and quotations, clubs, and family participation activities are a few among many suggested for all grade levels. ED 066 298, 28 pages;

U.S. National Report on the Human Environment, by the Department of State, constitutes the U.S. preparatory statement for the U.N Conference on the Human Environment. It describes our environmental problems and discusses actions being taken to resolve them. ED 066 292, 60 pages.

The above selection is presented here as a representative one; there is no intention of implying completeness or superiority of quality. Each of these documents, along with numerous others, is described more fully in **RIE.** All are available in microfiche or hard copy from:

ERIC Document Reproduction Service
Leasco Information Products, Inc.
P. O. Drawer 0
Bethesda, Maryland 20014

Microfiche cost is 65 cents per document, and hard copies $3.29 per document, up to 100 pages. Many of those described above are also available at lower cost from the original source.

More complete EDRS ordering information may be secured from the address above, from **Research in Education,** from back issues of this and other SMEAC newsletters, and from various "How to Use ERIC . . ." publications.

Readers are reminded not to contact SMEAC for publications, but rather to place orders directly with addresses given. Materials listed as being available in **Research in Education** may be secured directly from ERIC Document Reproduction Service, but not from SMEAC.

ERIC Searches . . .

ERIC/Dialog, an interactive information retrieval language which allows the user to formulate simple or complex search requests via a video/keyboard display terminal coupled to a computer containing the material to be searched, has been developed and is available from Lockheed Information Sciences. Among files available are:

Research in Education, abstracts of educational research reports and projects;

Current Index to Journals in Education, abstracts from 352 publications related to education;

Current Project Information, abstracts of research projects funded by USOE's Bureau of Research;

Pacesetters in Innovation, abstracts of Projects to Advance Creativity in Education (PACE), 1966-70;

Field Reader Catalog, compilation of nongovernment specialists under contract to the USOE Bureau of Research;

Exceptional Children Abstracts, abstracts of research, instructional materials, administration, methods, curriculum, etc., in the field of exceptional children.

For additional information, contact Lockheed Information Sciences at: 3251 Hanover St., Palo Alto, CA 94304, (415) 324-3311; 405 Lexington Ave., New York, NY 10017, (212) 697-7171; or 900-17th St. NW, Washington, DC 20006, (202) 296-5700.

ORAU Publishes Plans For Monitoring Devices

Detailed illustrations, schematics, printed circuit board diagrams, and parts lists for each of four instrument prototypes developed during the first phase of the Environmental Experiments Program of Oak Ridge Associated Universities were printed in the program's newsletter, **Report on Environmental Experiments Program,** for February, 1973.

Instruments for which plans were given include a noise meter, pH meter, radiation detector, and binary counter. All components are off-the-shelf items available from most electronics supply houses, with the exception of printed circuit boards; they are obtainable at low cost from ORAU.

ORAU began development of the series of student-built environmental monitoring instruments in 1971, under a grant from National Science Foundation. Subsequently, support for development and dissemination activities has been received from NSF, U.S. Atomic Energy Commission, U.S. Office of Education, and National Park Service.

More information may be obtained from:

Information and Exhibits Division
Oak Ridge Associated Universities
P. O. Box 117
Oak Ridge, TN 37830

AAAS, CONACYT Plan Joint Meeting in Mexico City

Environmental concerns will be a primary focus of a special joint meeting of the American Association for the Advancement of Science (AAAS) and its Mexican counterpart, the Consejo Nacional de Ciencia y Tecnologia (CONACYT), in Mexico City, June 20 to July 4, 1973.

Ten central themes will constitute the core of the technical program. These themes will explore in depth crucial problems at the interface of scientific insights, technological developments, and public policy and goals. **Victor Urquidi**, Presidente, El Colegio de Mexico, and **Harrison Brown**, Foreign Secretary, National Academy of Sciences of the United States, are arranging a symposium on *Science, Development and Human Values*, and **Roger Revelle**, Harvard University, and **G. Castanares**, El Colegio de Mexico, are organizing a second central theme symposium of *Problems of Population*.

Other symposia will deal with wise development and preservation of resources; health, behavior, and education; and various areas in the physical and biological sciences. Altogether, 41 symposia are planned, plus a number of invited lectures, an international science film festival, programs for young people, tours of cultural, scenic, and scientific sites, and other activities.

All symposia are jointly planned by Mexican and U.S. representatives, with emphasis on inclusion of participants from the other nations of the Americas or from abroad. About half of the 700 active participants will be from the U.S., one-quarter from Mexico, and one-quarter from elsewhere.

AAAS began running detailed information reports on the meeting in its official journal, **Science**, in late February of this year, and continues to do so. Thus, that weekly publication will be the best source for those desiring more information.

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SMEAC 3-Module Package Nears Completion

ERIC SMEAC's three-module package on environmental education is in its final stages of preparation and is expected to be available during autumn 1973.

Module I, a slide-tape presentation consisting of 80 slides accompanied by a taped narrative running approximately 14 minutes, *The Earth—And Nothing More*, was written by **John H. Wheatley** and **Herbert L. Coon** for presentation to teacher and citizen groups interested in learning about the many aspects of environmental education. It emphasizes interrelationships of all organisms, and points out important environmental education concepts in bio-physical, sociocultural, change, and environmental management areas. Viewers of the program are shown how local groups may become involved in environmental projects, and where resource persons and materials are available to them.

A collection of exemplary curriculum documents has been selected for Module II; they vary from relatively "slick" commercial publications to locally-produced materials, but have in common tentative usefulness in environmental education situations.

Also near completion is Module III, a collection of more than 100 activities to be used by classroom teachers. All of the activities are classified by grade level, subject area, and environmental education concept, along with problem area. References are included if further information is needed by the teacher.

Information regarding costs and availability of these products will be included in the next issue of this newsletter.

Master Planning Conference Develops Recommendations

How—and how not—to go about the statewide master planning process for environmental education was of central concern at a national conference co-sponsored by the Center for Research and Education and the U.S. Office of Environmental Education at Estes Park, Colorado, May 16-18, 1973.

30 participants from 14 states, ranging geographically from Rhode Island to Hawaii, background-wise from universities, governors' offices, state education agencies, federal agencies, and citizen's groups, and experience-wise from those with "completed" plans, through those contemplating initiation of such activity, to those having academic interest, spent a series of small- and large-group sessions discussing and debating both fine and gross points worthy of consideration. Consensus was not generally achieved; what is appropriate in one place often is not in another.

Dr. William S. Stapp, University of Michigan, served as primary resource person for the conference; also furnishing leadership were **Ms. Mary Ches Williams** and **George Lowe**, USOE(EE), several members of the National Advisory Council on Environmental Education, and **Bruce Morgan** and **Richard Rocchio** of Center for Research and Education. A number of participants also provided key input.

A primary output of the conference will be a document summarizing recommendations made. This document, currently in preparation, is expected to be available through the ERIC system; its availability will be announced upon completion.

As an adjunct to the conference, a meeting of the National Advisory Council was held. Among members of that group present at that meeting and participating in other conference sessions were: **Ms. Ella Mae Turner**, chairman, Los Angeles; **Ms. Nancy Ayers**, Endwell, NY; **Kenneth A. Cook**, St. Louis; **Peter Hunt**, Bronxville, NY; **Ms. Linda Lee**, Washington, D.C.; **Michael Millenson**, Clayton, Mo.; **Ms. Julia Perry**, Tucson; **Rudolph Schafer**, Sacramento; **Ms. Judith Schultz**, Cincinnati; **Ms. Phyllis Singer**, Waterloo Iowa; **Ms. Cynthia Wayburn**, San Francisco.

Meetings, Conferences . . .

The Western Regional Environmental Education Council held a working meeting in Jackson, Wyoming, in August, 1973. Several developmental projects were discussed, ranging from the availability of "Wyoming Cards" (see announcement in this *Newsletter*) to the relative success of the "Ekistics" curriculum in California. Considerable effort was expended in the selection of projects for future funding and the identification of needs and available resources for environmental education development.

Modules I, II, and III (also discussed elsewhere in this *Newsletter*) were demonstrated for participating state coordinators by **Robert E. Roth**, ERIC/SMEAC.

The 1973 national meeting of the Conservation Education Association was held August 11-16 at Murray State College, Kentucky, under the chairmanship of **John Paulk**, Land Between the Lakes, TVA. More than 250 participants attended a wide variety of presentations ranging from "the energy crisis" to the role of environmental ethics in political decision-making.

A day of fieldtripping to various educational facilities in Kentucky and TVA's Land Between the Lakes facilities highlighted the conference. **Robert E. Roth**, ERIC/SMEAC, made a presentation concerning "How to Use ERIC for Environmental Education."

New officers installed at the annual business meeting included:

President: **Jane Westenberger**, US Forest Service, Washington, DC;
2nd Vice-president: **Neil Jenkins**, Missouri;
Secretary-Treasurer: **Robert Cook**, University of Wisconsin-Green Bay;
Directors (1973-76): **John Paulk**, Kentucky; **John Hewston**, California.

SE 017 938

54 Projects Funded Under P.L. 91-516

Fifty-four projects designed to enhance environmental literacy and promote understanding of contemporary ecological problems have been awarded nearly $1.2 million in federal grants by the U.S. Office of Education, HEW Secretary **Casper W. Weinberger** has announced. This represents a reduction from the approximately $3.18 million originally earmarked for fiscal 1973; funding under the Environmental Education Act of 1970 (P.L. 91-516) totalled $1.7 million in FY 1971 and $3 million in FY 1972.

FY 1973 projects, located in 32 states and the District of Columbia, focus on four priority areas—resource material development, personnel development, community education, and elementary and secondary education. Programs generally deal with junior and senior high school levels and non-formal community education groups and organizations.

Also included in the awards are 18 minigrants of $10,000 or less to be used for workshops, conferences or seminars that will assist local communities in acquiring an understanding of the causes, effects, issues, and options surrounding local environmental problems. Recipients include state and local education agencies, community colleges, colleges and universities, and private educational and environmental organizations.

Award recipients include:

Bear Creek Watershed Environmental Education Project, Russellville, ALABAMA; **$6,850**; to conduct a series of six workshops for 13 school systems in Alabama and Mississippi on environmental education techniques and philosophy;

Alaska Department of Education, Juneau, ALASKA; **$30,000**; to conduct a series of statewide environmental education workshops for teachers, students, community people, and resource agency personnel to train them in a transferable process useful in solving environmental problems;

Arkansas Department of Education, Instruction Division, Little Rock, ARKANSAS; **$38,317**; to take the best environmental education and environmental studies materials developed for junior and senior high schools and modify them for use in Arkansas, by means of a series of workshops and by providing technical assistance to participating schools;

John Muir Institute for Environmental Studies, Berkeley, CALIFORNIA; **$25,000**; to develop, test, and evaluate self-instructional environmental education materials for urban junior and senior high school students, the materials to foster the acquisition of problem-solving skills and ecological-environmental concepts;

Environmental-Population Education Services, Inc., New Haven, CONNECTICUT; **$6,110**; to design an environmental problems course for high school students;

University of Delaware College of Education, Newark, DELAWARE; **$38,914**; to integrate current population-environment studies into existing school programs, with the support of educational agencies, resource management agencies, and local business, industry, and service organizations;

The Conservation Foundation; Washington, DISTRICT OF COLUMBIA; **$35,000**; with the assistance of The Ohio State University School of Natural Resources, to develop five case studies, each in a different format, on major local environmental issues which are also of national concern for use in secondary schools;

Institutional Development and Economic Affairs Service, Inc., Washington, DISTRICT OF COLUMBIA; **$25,000**; to develop a model environmental education content and process relating to a specific regional environmental problem or issue;

League of Women Voters Education Fund, Washington, DISTRICT OF COLUMBIA; **$19,959**; to devise a public education campaign in land use and prepare citizen guides, leadership guides, case histories, and summaries of the issue of land use planning;

Florida State University, Social Studies Education, Tallahassee, FLORIDA; **$21,535**; to produce episodic materials for use in teaching American history to eighth graders; eight different periods of American history will be discussed, and changes in the North American environment during these periods will be stressed;

Lee County Schools, Fort Myers, FLORIDA; **$24,683**; to disseminate through workshops and other methods environmental education materials (K-12) developed under ESEA Title III to other schools at state and national levels;

National Association for Environmental Education, South Miami, FLORIDA; **$28,200**; to develop a model curriculum in environmental studies in modular form for grades 4-8;

School Board of Dade County, Miami, FLORIDA; **$30,400**; to continue developing the Center for Urban Research and Environmental Studies;

Windward Regional Council, Kanoehe, HAWAII; **$9,600**; to conduct a series of training workshops for citizen involvement committees and community environmental planning groups; focus to be on island environmental problems;

Buhl Schools, Twin Falls, IDAHO; **$9,824**; to sponsor a series of environmental education workshops, with the help of state and federal agencies, for teachers and community members in order to introduce environmental education into Region 4 of southern Idaho;

Board of Trustees of Southern Illinois University, Carbondale, ILLINOIS; **$21,000**; to develop a community environmental education program based on ecodramas created to clarify current ecological problems and values and to stimulate the community to find solutions to these problems;

Illinois Earth Science Association, Northeastern Illinois University, Chicago, ILLINOIS; **$10,000**; to conduct a series of workshops on earth-science-oriented environmental education, designed to develop learner and teacher guides;

Indiana University Foundation, School of Public and Environmental Affairs, Bloomington, INDIANA; **$40,000**; to research, develop, edit, and publish a collection of case studies on environmental issues for use at the junior and senior high school level;

Marian College, Indianapolis, INDIANA; **$15,000**; to complete development of environmental education materials and inservice training activities for teacher and non-educational personnel which are related to the use of an outdoor ecological lab established at Marian College;

Kirkwood Community College, Cedar Rapids, IOWA; **$48,843**; to complete development of a curriculum for a new career in the environmental area of integrated pest control, to span from junior high through college, with stress on environmental studies as well as the substantive area of integrated pest control;

Jasper County Soil Conservation District, Newtown, IOWA; **$19,983**; to conduct a series of teacher workshops to develop environmental education expertise for transference throughout other Iowa communities;

Chesapeake Bay Foundation, Inc., Annapolis, MARYLAND; **$9,900**; to sponsor a series of six workshops in

Maryland and Virginia to inform citizens and organizations of their rights under the wetlands statutes, with emphasis on the ecological significance of exercising those rights;

School of Natural Resources, University of Michigan, Ann Arbor, MICHIGAN; **$45,000**; to organize two working conferences to further conceptualize the state of the art of environmental education, and to develop an evaluation instrument and a technical assistance manual for evaluating ongoing environmental education programs;

International Union, United Automobile, Aerospace, and Agri-Implement Workers of America—UAW, Detroit, MICHIGAN; **$24,771**; to introduce an environmental education training course for local union leadership and their families, based on existing materials and focusing on community environmental problems;

Minnesota Academy of Science, Minneapolis, MINNESOTA; **$9,800**; to conduct a three-day conference and small-group workshop for a broad cross-section of individuals representing business, education, government, and citizen groups, to explore the various environmental problems of the state and suggest ways that industry, government, and education can improve the quality of life;

Center for the Biology of Natural Systems, Washington University, St. Louis, MISSOURI; **$9,996**; in cooperation with KWMU National Public Radio station, to produce a series of weekly radio features on environmental problems and issues and prepare related curricular materials for use in grades 6-10;

Committee for Environmental Information, St. Louis, MISSOURI; **$22,500**; to produce, test, and evaluate curriculum units on environmental problems for use in local high schools, the units to be based on material appearing in **Environment** magazine;

Girl Scouts of the U.S.A., Kansas City, MISSOURI; **$10,000**; to conduct nine environmental education workshops for Girl Scout council staff members, volunteers, and persons from non-Scout agencies and the community;

Falls Creek Environmental Education Foundation, Inc., Missoula, MONTANA; **$7,828**; to hold a series of training workshops to introduce teachers to a variety of environmental education techniques;

St. Anselm's College, Manchester, NEW HAMPSHIRE; **$33,500**; to engage, with Manchester Public Schools, in an environmental studies program for the Manchester watershed by training additional student-teacher teams to monitor the watershed both biologically and chemically by giving assistance to other nearby watersheds;

Boy Scouts of America, Conservation, North Brunswick, NEW JERSEY; **$9,875**; to develop the Ecology Workshop, a model program that will have the potential of being replicated by Scouts across the country;

School of Education, Seton Hall University, South Orange, NEW JERSEY; **$27,100**; to continue to develop a pilot project and demonstration model for the introduction of environmental education in a pre-service teacher training situation;

Ramah Navajo School Board, Ramah, NEW MEXICO; **$27,880**; to continue development of environmental study materials based on traditional Indian views of the environment, the relation of these views to technological progress, and the environmental problems particular to the Navajos;

Friends of CAN, New York, NEW YORK; **$14,850**; to develop a 30-hour multidisciplinary environmental education curriculum for fourth, fifth, and sixth grade use; primary environmental problem focus will be solid waste disposal;

Federated Conservationists of Westchester County, Inc., Tarrytown, NEW YORK; **$10,000**; to conduct a series of courses, workshops, symposia, and conferences for community decision makers and leaders, stressing the environmental problems of Westchester County;

The Nichols School, Buffalo, NEW YORK; **$8,331**; to conduct a workshop for public and private high school students on the problems of water pollution and water analysis; water analysis skills will be taught at the workshop;

Toledo Public Schools, Toledo, OHIO; **$23,069**; to produce an expanding city-wide network of teacher training activities and follow-up assistance in setting up environmental education programs within individual classrooms, to be made possible by special technical assistance from universities, other related national projects, and the Office of Environmental Education;

Institute for Environmental Education, Cleveland, OHIO; **$64,000**; to facilitate the expansion of the Cuyahoga Watershed Project into Cuyahoga Heritage by expanding the project locally and disseminating the model nationally through other watershed and heritage groups; .

United States Jaycees Foundation, Tulsa, OKLAHOMA; **$21,500**; to expand project ECO, a community-based environmental improvement project, by extending its program to secondary schools, colleges, and universities;

Environmental Education Center, School of Education, Portland State University, Portland, OREGON; **$40,000**; to conduct workshops using nationally-tested environmental educational materials and processes for high school teachers;

Portland Public Schools, Prescriptive Education Program, Portland, OREGON; **$9,165**; the CATCH program —the development of an environmental study area by and for students—will continue to support the use of the study area by elementary students, and will begin to transfer its knowhow to the development of other environmental study areas in the region;

University of Pittsburgh, Pittsburgh, PENNSYLVANIA; **$32,085**; to develop a self-study course on energy and society for high school teachers and community leaders, holding workshops to develop and disseminate this material;

Luzerne-Lackawanna Environmental Council, Scranton, PENNSYLVANIA; **$50,000**; working with the Public Broadcasting Center of northeastern Pennsylvania, to bring the process of environmental education to bear upon the formal educational establishment and the community at large through tested environmental education materials;

NE Pennsylvania Education Television Association, The Public Broadcasting Center, Pittston, PENNSYLVANIA; **$49,000**; in cooperation with Luzerne-Lackawanna Environmental Council, to develop a joint national demonstration project illustrating how nonformal educational institutions and groups can facilitate the introduction of environmental education concepts into the elementary, secondary, and college educational systems; to further develop the Hazelton environmental community model;

Rhode Island Department of Education, Providence, RHODE ISLAND; **$8,996**; to sponsor a series of workshops to train training teams to go to the public school system and carry out a project known as Narragansett Bay Heritage, a monitoring and data-gathering network aimed at improving the environmental quality of the bay;

Texas System of Natural Laboratories, Inc., Austin, TEXAS; **$9,980**; with the assistance of Baylor University, to conduct a series of workshops for teachers and community members to study the impact of Waco Town Lack on the Brazos River ecosystem, including a survey of various environmental indicators involved;

Windham Regional Planning and Development Commission, Brattleboro, VERMONT; **$2,600**; to initiate a community education program based around the environmental problems created by unplanned growth and development;

Washington County Environmental Council, Emory, VIRGINIA; **$1,010**; to conduct a series of workshops, each focusing on a different aspect of the community; an overview will be provided, showing how all the community aspects fit into the community ecosystem;

Central Washington State College, Environmental Studies Division, Ellensburg, WASHINGTON; **$28,000**; with CISPUS Environmental Learning Center, to conduct a series of training workshops for teachers and administrators; workshops for resource persons from various agencies will also be conducted, and will focus on the philosophy, materials, and methodologies of successful environmental education programs;

Zero Population Growth, Seattle Chapter, Seattle, WASHINGTON; **$7,515**; to hold a series of workshops on population growth and its relationship to the environment and environmental problems;

Sigurd Olson Institute of Environmental Studies, Northland College, Ashland, WISCONSIN; **$17,240**; to develop a community education program focusing on environmental implications of land use planning in rural Wisconsin;

University of Wisconsin, Stevens Point, WISCONSIN; **$4,758**; to sponsor a series of seminars on central Wisconsin (Sand County) land uses; each session will be taped and broadcast over the state educational radio station;

University of Wisconsin, Green Bay, WISCONSIN; **$25,572**; to develop an environmental education model centering on a community environmental problem (Kewaunee River Watershed) as a laboratory for demonstrating a universal community model;

Natrona County School, District One, Casper, WYOMING; **$9,996**; 11th and 12th grade students are studying the environmental implications of an electric power plant with the cooperation of Pacific Power and Light Company.

Publications of Interest . . .

Proceedings from international, regional, and local meetings on environmental problems held around the world since 1970 make up a collection of nearly 800 titles reproduced on microfiche entitled **The Human Environment Microlibrary**. Included in the collection compiled by Microfiche Productions in cooperation with the Woodrow Wilson Center for Scholars are documents covering the UN Stockholm Conference of June 1972, monographs of the UN Economic Commission for Europe (ECE) Symposium on Problems Relating to the Environment, held in Prague in 1971, and papers from major meetings in Paris, Geneva, New York, and Washington.

The Wilson Center's publications providing lists, abstracts, and indexes, Volumes I and II of **The Human Environment**, are included with the microlibrary, filmed in 98-frame format at a 24X reduction, in a package for $450.

Alternatively available is the **National Reports Microlibrary**, a subset of the main library which contains more than 70 national reports from the Stockholm Conference. This subset consists of more than 2500 pages, and is available for $50, which price also includes a printed abstract reference published by The Wilson Center.

Further information is available from:

Arthur D. Kramer
Microfiche Publications
305 East 46th Street
New York, NY 10017
(212) 593-2450

A 40-page booklet delineating the responsibilities of the U.S. Environmental Protection Agency, **The Challenge of the Environment: A Primer on EPA's Statutory Authority**, is available from USGPO at 45 cents per copy.

Environmental Quality and the Citizen: A Teaching Guide for Adult Education Courses Related to the Environment, by **Bernard L. Clausen** and **Ross L. Iverson**, has been produced under a P.L. 91-516 grant and is available from:

Soil Conservation Society of America
7515 N.E. Ankeny Road
Ankeny, Iowa 50021
(515) 289-2331

The Clear and Present Danger: A Public Report on Nuclear Power Plants, a 48-page summary of dangers of such installations, has been prepared by Environmental Education Group, with assistance from The Ecology Center of Southern California, under a grant from Environmental Alert. Copies are available from:

Environmental Alert
1543 North Martel
Los Angeles, Calif. 90046

Four publications produced as a result of the Institute on Environmental Information Programs for Public Libraries, held at Western Michigan University in May, 1972, have been assembled in a portfolio, **Environmental Information Programs for Public Libraries**, available for four dollars from:

Western's Campus Bookstore
Western Michigan University
Kalamazoo, MI 49001

Publications included are:

A Handbook on Environmental Information Programs for Public Libraries, by **Martin Cohen**;

Environmental Periodicals for Public Libraries: A Selected Annotated List, by **Ann H. Raup**;

Guide to Private Citizen Action Environmental Groups, by **Beatrice Sichel**;

Enviro-films: candid reviews of 16 mm. films about natural resources and our environment, by **Diane D. Worden**.

A **National Buyer's Guide to Recycled Paper** lists 110 companies that manufacture recycled paper, and their recycled paper products, the percentages of manufacturing, pre-consumer and post-consumer waste contained in the paper, additional information about the paper's characteristics, potential uses, and ordering specifications, and the distributors or regional offices where these products can be purchased. Single copies cost $4; reduced rates are available for bulk orders from:

Environmental Educators, Inc.
1621 Connecticut Avenue, NW
Washington, DC 20009

Environmental Education Material: A Catalogue of Reviewed and Evaluated Free and Low-Cost Materials for Science, Social Studies, and Industrial Arts, a 20-page compilation by NSTA's Committee for Review and Evaluation, is available for $2 per copy, prepaid, as stock number 471-14650, from:

National Science Teachers Association
1201 Sixteenth Street, NW
Washington, DC 20036

Energy/Environment/Economy, an annotated bibliography of selected U.S. government publications concerning United States energy policy, consists of 109 entries on 22 pages. Dated April, 1973, it is available at $2 per copy from:

ENVIRO/INFO
P.O. Box 115
Green Bay, Wisconsin 54305

The Lander, Wyoming, Conservation Center for Creative Learning, a Title III, ESEA project, has developed some 300 activity cards appropriate for use in environmental education efforts. These cards, for use with students of any age, are designed to be useful in virtually any subject area, though most appropriate for science, social studies, and language arts.

The Western Regional Environmental Education Council has given support to the Conservation Center's attempt to make the cards widely available through a special grant.

Requests for further information or orders for card sets, at $5 per set, should be addressed to:

Lander Conservation Center for Creative Learning
Robert J. Legoski
863 Sweetwater Street
Lander, WY 82520

Kids for Ecology, a new bimonthly environmental magazine, is unique in that nearly all of its content is contributed by children. The publishers award $5 cash prizes to any youngster whose work is published. Contributors to the first issue, February 1973, ranged in age from 8 to 14. Subscriptions to the 24-page magazine cost $4 yearly, from:

Kids for Ecology
P. O. Box P-7126
Philadelphia, PA 19117

Background, functions, and accomplishments of the EPA are detailed in **Environmental Protection Agency—A Progress Report,** a 117-page history of the agency. It is available at $2 per copy from:

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

Proceedings of the **National Land Use Policy Conference** sponsored by the Soil Conservation Society of America, held in Des Moines, IA, in November, 1972 include 19 papers; the report is now available at $3.50 postpaid for single copies, with discounts for larger orders, from:

Soil Conservation Society of America
7515 N. E. Ankney Road
Ankney, IA 50021

"Johnny Horizon" Designated by ARBC

The Johnny Horizon '76 "Let's Clean Up America For Our 200th Birthday" Program has received recognition as an official National Bicentennial Program activity by the American Revolution Bicentennial Commission (ARBC).

In a letter to Secretary of the Interior **Rogers C. B. Morton,** ARBC Chairman **David J. Mahoney** reported that the Commission had passed a resolution to make Johnny Horizon '76 a part of the National Bicentennial Program and to seek "the participation of all environmental constituencies—public and private" to establish Johnny Horizon '76 as a "major part of our Nation's Bicentennial Era."

Johnny Horizon '76 is an expansion and redirection of the Johnny Horizon program launched by the Bureau of Land Management in 1968. Now operated from the Office of the Secretary of the Interior, Johnny Horizon has been endorsed by the U.S. Postal Service, the U.S. Army Corps of Engineers, Tennessee Valley Authority, and the Civil Service Commission of the General Services Administration, as well as by ARBC. More information is available from the Johnny Horizon '76 Coordinator, U.S. Department of the Interior, Washington, DC 20240.

Alliance for E^2 Names Officers

Twenty organizations with a total membership exceeding 11,330,000 have joined forces in an **Alliance for Environmental Education, Inc.**

The organization has its origins in the common concern of the groups for the preservation and improvement of the quality of the environment. Member groups in the Alliance share an interest in the need to improve the effectiveness and enlarge the efforts of formal and non-formal education in helping learners perceive environmental problems and assume a personal commitment for improving the quality of life on earth.

The formal launching of the Alliance took place at the first annual meeting of the Board of Directors May 9-11 at Airlie, Va.

The Alliance hopes to achieve its goals by facilitating communications among organizations concerned with environmental education, and by encouraging cooperation among them.

In addition, the Alliance will work for increased efforts in the area of environmental education and will help to eliminate duplication among organizations, thereby increasing the effective use of each organization's resources and increasing the impact of environmental education.

Officers elected were **Dr. Kenneth Dowling,** representing the National Science Teachers Association, president; **Dr. John A. Gustafson,** American Nature Study Society, president-elect; **William Elam,** National Council for Geographic Education, vice president, and **Dr. James L. Aldrich,** The Conservation Foundation, treasurer.

Elected to serve with the officers on the executive committee were **Ms. Francine Craven,** Girl Scouts of the United States of America; **Ms. Betty MacDonald,** League of Women Voters of the United States; and **Rudolph Schafer,** Western Regional Environmental Education Council.

Participants in the Alliance include environmental and conservation groups with education programs, education groups with environmental programs, and youth and citizens organizations with environmental education programs.

In addition to the executive director, the Alliance planned to have a full-time staff assembled this autumn. Plans are for headquarters in the Washington, D.C. area, and foundation support for the full-time operation.

The organization has already set basic machinery in motion with the publication of two informational pieces—**Alliance Exchange,** a monthly newsletter, and **Alliance Instant Exchange,** a rapidly disseminated occasional communication containing items of importance to the environmental education community.

Simulations

Bureau of Land Management, U.S. Department of the Interior, will supply single free copies of **Environmental Issues: A Courtroom Simulation** to individual teachers on request, according to an announcement from **Linda K. Bemis,** BLM's environmental education coordinator.

This role-play simulation is identified as generally appropriate for grades 11-12, college and adult groups; its purpose is to help acquaint students with laws, law-suits, and courtroom activity and their relationship to the solution of environmental questions.

Those interested may secure copies from:

Environmental Education Coordinator
Bureau of Land Management (220)
U.S. Department of the Interior
Washington, DC 20240

Awards Program Needs Local Leadership

"To assure that the President's Environmental Merit Awards Program (PEMAP) is relevant, strong local guidance is required," notes **Ms. Leslye Arsht**, Acting National Coordinator of PEMAP. "An awards panel, comprised of faculty, student, news media and community representatives selected by the individual school principal or faculty sponsor should set awards criteria and evaluate the projects. It should also seek the support of the entire community. Once the list of winners of Merit or Excellence awards is determined by the panel, that list is sent to us in Washington for processing of the certificates."

Ms. Arsht continues: "We are hoping that this year we will be able to provide some teaching aids for the classroom though these are not really necessary for the enlightenment of students. PEMAP projects may be extracurricular activities or classroom-related. We believe that teachers of all subjects can apply their course material to ecology-related issues. Government and social science teachers might devote time to discussing changing life styles which necessarily accompany environmental awareness or the social impact of decisions favoring the environment; English teachers might have their students write letters to public officials about something 'environmentally wrong' with their community. The possibilities are limitless—ask the children, they have plenty of ideas of their own.

"We sincerely hope that every school and youth group in America will share enthusiastically in the spirit of the PEMAP theme: 'Life . . . Pass It On.' Please join us."

Enrollment information is available from:

Ms. Leslye Arsht
The President's Environmental Merit
Awards Program
401 M Street, SW
Washington, DC 20460
(202) 755-2760

SMEAC

Dr. Robert W. Howe
Director

Dr. Stanley L. Helgeson
Associate Director
Science Education

Dr. Patricia E. Blosser
Research Associate
Science Education

Mrs. Beverly M. Lee
Research Associate
Environmental Education

Dr. Jon L. Higgins
Associate Director
Mathematics Education

Dr. F. Joe Crosswhite
Research Associate
Mathematics Education

Dr. Marilyn N. Suydam
Research Associate
Mathematics Education

Dr. Robert E. Roth
Associate Director
Environmental Education

Dr. John F. Disinger
Research Associate
Environmental Education

Dr. John H. Wheatley
Research Associate
Environmental Education

**ERIC Information Analysis Center
for Science, Mathematics, and
Environmental Education
400 Lincoln Tower
The Ohio State University
Columbus, Ohio 43210**

ADDRESS CORRECTION REQUESTED

1250–RF-2228
Environmental Education—Volume 3, Number 5, 1973

SMEAC

ERIC

Center Comments

New Publications to Replace Newsletter

Due to governmental restrictions on printing, the growth in demand for the three newsletters from this Center, and the large number of requests by people for special information, we are discontinuing publication of our three newsletters and replacing them with fact sheets and bulletins directed to specific audiences. These publications will be published on selected topics and will present information of interest to specific audiences. We believe we can serve the large number of people who use our newsletters and who request information from the Center more effectively by this procedure.

A mailing request form for these free publications is on page three of this newsletter. Please be sure to complete and return the form if you want to receive the new publications. Our current mailing list will be scanned to maintain libraries and professional associations. Individuals or other groups must return a request for the new service.

Topics for the fact sheets and bulletins are being selected from information requests received at ERIC/SMEAC. If you have suggestions for topics, please send such ideas to us with the mailing form.

Mrs. Beverly Lee

Many of the people who have worked with the ERIC/SMEAC staff, requested information from the Center, and attended conferences where ERIC/SMEAC participated, met Mrs. J. Robert Lee. Beverly was a Research Associate in Environmental Education and active in many activities of the Center.

We were all deeply saddened by her death in November, 1973. She was an outstanding worker, a good friend, and one who worked hard to make the world a better place to live.

Robert W. Howe
Director

If you desire to continue to receive information from ERIC/SMEAC, complete and return the Mailing List Request Form on page 3.

SE 017 938

SMEAC Products, Publications . . .

Two parts of the ERIC/SMEAC three-module package in environmental education are now available for purchase through the Center for Science and Mathematics Education, The Ohio State University, 244 Arps Hall, Columbus, Ohio 43210.

MODULE I

Module I, a slide-tape presentation consisting of 80 slides accompanied by a taped narrative running approximately 14 minutes, *The Earth—And Nothing More,* written by **John H. Wheatley** and **Herbert L. Coon,** carries a purchase price of $31.50. It was designed for presentation to teacher and citizen groups interested in learning about the many aspects of environmental education, emphasizing interrelationships of all organisms.

MODULE III

Module III, *One Hundred Teaching Activities for Environmental Education,* also compiled by Dr. Wheatley, is also available, at $3.50.

PROJECT/PROGRAM DIRECTORY

The second edition of the ERIC/SMEAC *Directory of Projects and Programs in Environmental Education for Elementary and Secondary Schools,* compiled by **John F. Disinger** and **Beverly M. Lee,** contains reports of 296 such efforts, and is priced at $8.50, also from the Center for Science and Mathematics Education.

STATE DIRECTORIES

Processing has been completed on the five-volume **State Directories in Environmental Education,** coordinated by Dr. Disinger and Mrs. Lee; these documents will be announced in an early issue of *Research in Education* and will be available from **Educational Document Reproduction Service** in microfiche or hard copy, upon announcement. These directories are based on information supplied by the U.S. Office of Environmental Education and generally updated by members of the ERIC/SMEAC state coordinator network, and attempt to detail environmental education efforts throughout the nation, state by state. The breakdown is by U.S.O.E. regions, as follows:

Volume I—U.S.O.E. Region I;
Volume II—U.S.O.E. Regions II and III;
Volume III—U.S.O.E. Regions IV and V;
Volume IV—U.S.O.E. Regions VI and VII;
Volume V—U.S.O.E. Regions VIII, IX, and X.

Approximately 400 persons are named in a **Directory of Environmental Consultants** listing individuals willing to provide part-time, free environmental consulting to schools, etc. The price is $6 a copy, available from:

Directory of Environmental Consultants
P.O. Box 80002
University Station
St. Louis, MO 63018

Meetings, Conferences . . .

The U. S. National Commission for UNESCO and the Science Division of the Nashville Metro Schools will sponsor a state wide **STEP (Students Toward Environmental Participation) Conference** in Nashville, Tennessee, April 24-26, 1974. Vanderbilt University will kick off the conference with a picnic for the students and the opening session will take place on Vanderbilt campus. All other sessions will be held at Opryland, USA.

STEP is a high school program sponsored by the U. S. National Commission for UNESCO and the National Park Service.

Participation in the conference will be limited to 350, including students, resource persons and teachers. High school students invited to the conference will be asked to select a project in education, science, culture or mass communication, and do research on the project with a community resource person. They will share their problem-solving ideas at the conference.

The conference has wide support not only from community leaders but from the Tennessee State Department of Education, the Tennessee Environmental Council and other interested groups.

Persons wishing to know about action projects on which high school students are working may write for a copy of the STEP Newsletter. Communications should be addressed to:

STEP
U. S. National Commission for UNESCO
Department of State
Washington, D.C. 20520

Environmental education as a new route to the improvement of all education was the theme of a conference on environmental education held in Boulder in October, 1973.

The conference was the annual meeting of the **Consortium of Regional Environmental Education Councils**. It was sponsored by the American Association for the Advancement of Science Commission on Science Education.

The Consortium is preparing a definition of environmental education and guidelines for the development of environmental education programs. The Boulder conference was one important step in these efforts.

The next major step was a **symposium on environmental education** at the AAAS annual meeting, Feb. 24-March 1, 1974, in San Francisco. **J. Arthur Campbell** of Harvey Mudd College, **Irving Morrissett,** executive director of the Social Science Education Consortium, and **Carl Swanson** of the University of Massachusetts were the principal speakers.

The Consortium of Regional Environmental Education Councils was organized, under sponsorship of the Commission, following a 1970 conference at AAAS, where representatives of a dozen regional groups discussed their plans and needs. They emphasized the need for communication with other groups of similar purpose and responsibilities.

In addition to the state councils in Maine and New Jersey, other members of the Consortium are the Cleveland Museum of Natural History; Community Educational Resources of San Diego County; Cooperative Science Center, Inc., Oak Ridge; Fernbank Science Center, Atlanta; New Canaan (Connecticut) Nature Center Association, Inc.; Quality Environment Council of Nebraska and Western Iowa, Omaha.

Other regional environmental education groups interested in the Consortium are invited to write to:

AAAS Science Education
1776 Massachusetts Avenue, N.W.
Washington, D.C. 20036.

The Four-State Environmental/Ecological Planning Conference sponsored an **International Environmental Education Conference,** October 15-18, 1973, in Arden, North Carolina.

Under the leadership of **Paul Taylor,** director of the Four-State Project, and his staff, the conference provided an exchange of information on E.E. projects, materials, and ideas from Scotland (**J. C. Smith,** Paisley College of Technology), Canada (**Fred Gornall,** University of British Columbia), and the United Kingdom (**Ralph Eden,** The Polytechnic), as well as from many parts of the United States.

In addition to the many people attending from the Four-State Project, there were several representatives from the Western Regional Environmental Education Council and from the Northeastern Environmental Education Development.

ERIC/SMEAC was represented by **Jack Wheatley,** who had available copies of Module I (slide-tape presentation) and Module III ("100 Teaching Activities").

The informality of the conference provided opportunity for discussion groups and rap sessions.

CCD Offers "Values" Workshops

"In a recently-concluded nationwide series of environmental education workshops involving participants from each of the United States, we were constantly faced with the issue of values," **Noel F. McInnis,** director of the Center for Curriculum Design, reports. " 'Until people examine their values and find them wanting,' we heard again and again, 'the environmental situation will remain as it is—getting worse.' We discovered environmental educators all over the country who wished they had the skills for meaningful examination of environmental values.

"What do you say after you've said 'now we're going to examine our values?' Where do you begin? How do you get beyond philosophical meanderings, into an examination of the particular value systems of particular individuals? In recent years several persons have made considerable progress with these problems, and have developed many techniques, with supporting rationales, for facilitating the examination and reordering of personal value systems.

"The Center for Curriculum Design has synthesized a number of these techniques with some original experience and theory of its own, and offers an intensive one-day (7-hour) Environmental Values Clarification Workshop. This workshop can accommodate up to 100 persons (and with special arrangements, even more), with participants from any combination of educational levels (elementary-adult) and educational/service organizations. The Workshop equips participants with a self-propelling capacity to develop values clarification activities, techniques, and skills specific to their particular teaching responsibilities. In addition to The Center's materials provided before, during, and after the workshop, participants are directed to other resources for the support of this continued development."

Schools, school districts, educational/service agencies, and other organizations interested in convening such a workshop should contact:

Noel F. McInnis, Director
The Center for Curriculum Design
823 Foster Street
Evanston, Illinois 60204
(312) 866-7830

RIE Lists E.E. Documents

Among documents of potential interest to environmental educators which have recently become available through the ERIC system are:

Strand IV Environmental and Community Health; seven publications from the **New York State Education Department, Bureau of Secondary Curriculum Development**, furnishing curriculum guides, including—

Ecology and Epidemology of Health, Grades 10, 11, 12; 59p., 1970, ED 077 723;

Ecology and Health, Grades 7, 8, 9; 46p., 1970, ED 077 724;

Environmental and Public Health, Grades K-3; 47p., 1970, ED 077 725;

Environmental and Public Health, Grades 7, 8, 9; 79p., 1970, ED 077 726;

World Health, Grades 4-6; 28p., 1970, ED 077 727;

World Health, Grades 7, 8, 9; 37p., 1970, ED 077 728;

World Health, Grades 10, 11, 12; 57p., 1970, ED 077 729.

Additional documents available include:

Bear Creek, Alabama—Teachers' Workshop in Environmental Education (Hodges, Alabama, June 14-18, 1971); 52p., ED 077 695;

Youth Station Guidelines for Use, from TVA, Golden Pond, Ky.; 53p., 1973, ED 077 694;

Northern Colorado Outdoor Nature Center Project, Poudre School District R-1, Ft. Collins, Colorado, Final Report; 55p., 1972, ED 077 610;

A New Environmental Ethic. Texas State Plan for Environmental Education; 26p., 1973, ED 077 693;

Public Education as an Approach to Future Planning for Pollution Abatement, by **Eliot R. Hammer;** 11p., 1972, ED 077 798;

Environmental Studies in an Elective Communication Program, by **Kay Hauge;** 21p., 1972, ED 077 008;

Attitude Change as a Result of a Short Course on Environmental Quality, by **James L. Milson;** 14p., 1973, ED 077 683;

A Basic Reading List on State Environmental Education Planning Processes and Problems, by **B. Ray Horn;** 6p., 1973, ED 077 699;

Water Quality Control, Curriculum Guide, from **North Carolina State Department of Public Instruction;** 209p., 1972, ED 079 100;

Environmental Activities, K-12 Environmental Education Program, Summer Workshop 1972, from **Menomonie, Wis., Public Schools;** 42p., ED 079 068;

Environmental Ecological Education Program, Interim Evaluation Report July 1, 1971—June 30, 1972, from **Parkway School District, Chesterfield, Mo.;** 91p., ED 079 106;

The River Basin Model: Computer Output. Water Pollution Control Research Series, from **Environmental Protection Agency;** 253p., 1971, ED 079 177;

A series of 16 curriculum documents (ED 079 147 through ED 079 162) produced by **Project I-C-E,** Green Bay, Wis., in 1972.

All of the above documents, along with numerous others, have been abstracted in more detail in recent issues of *Research in Education.* Each title is available in microfiche for $0.65, or in hard copy for $3.29 per 100 pages (i.e., $6.58 for 101-200 pages, etc.), from:

ERIC Document Reproduction Service
Post Office Drawer 0
Bethesda, MD 20014

Many are available at lower hard copy cost from original sources. However, none are available directly from ERIC/SMEAC.

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Publications of Interest . . .

Complimentary copies of *Environmental Quality and the Citizen: A Teaching Guide for Adult Education Courses Related to the Environment,* produced by **Soil Conservation Society of America** under a P.L. 91-516 grant, have been exhausted. The guide is now being produced by SCS for sale at $2 per copy, under a limited copyright agreement with the U. S. Office of Environmental Education; multiple copy rates are available on request. Orders may be placed with:

Soil Conservation Society of America
7515 N. E. Ankeny Road
Ankeny, IA 50021
(515) 289-2331

Michigan United Conservation Clubs (MUCC) and the **Michigan Wildlife Foundation** have undertaken publication of a child-oriented environmental education supplement to *Michigan Out-of-Doors* magazine. The supplement, entitled *Keep It Green,* focuses on upper elementary and middle school groups, attempting to provide a comprehensive and inexpensive classroom resource.

After a trial period, MWF has decided to make the supplement available independently for those which wish to purchase it that way. Thus, the four-page resource can be made available at a cost of 95 cents per child per school year; a teachers' guide is included with each classroom set. School year subscription to *Michigan Out-of-Doors,* plus *Keep It Green,* and the teachers' guide costs $1.50, while the regular 12-month professional subscription to the entire package costs $3 per year.

More information may be secured from, or orders placed with:

Richard E. Taylor
Director of Environmental Education
Michigan United Conservation Clubs
Box 2235
Lansing, MI 48911
(517) 371-1041

Among recent publications of **Enviro/Info,** an independent venture attempting to (1) identify selected environmental information sources representing a variety of issues and points of view, (2) compile, print, and disseminate the results as a current awareness service, and (3) provide the service at minimal cost, are:

Energy/Environment/Economy (update September 1973), an annotated bibliography of selected U. S. government publications concerning U. S. energy policy; 23p.; 93 entries; $3;

Stockholm '72, bibliography of selected post-conference articles and documents on the June 1972 U. N. Conference on the Human Environment; published June 1973; 6p.; 68 entries; $1;

Science Policy, Technology Assessment, and the Environment, an annotated bibliography of selected U. S. government publications concerning the relationships of scientific/technological advancement and environmental quality; published August 1973; 18p.; 69 entries; $2.50.

Discount rates for multiple copies of a single title, along with other information and publication data, are available from:

Enviro/Info
P.O. Box 115
Green Bay, WI 54305

With the publication of grade 6, winter, 1973, **Education for Survival: Ecology in Science and Social Studies** now is available as a completed 1-6 series of curriculum guides. The interdisciplinary four-volume set, developed by teachers and environmentalists, is available for $17 from:

Education for Survival
300 Mendham Road
Morristown, NJ 07960

Use of simple, inexpensive, familiar and readily-available materials to teach environmental science is called for in **Teaching Science with Soil,** by Albert Schatz. As did its predecessor, **Teaching Science with Garbage,** this 130-page teacher reference presents activities and other information useful for teachers at all levels. It is available at $3.50 per copy from:

Rodale Press
Emmaus, PA 18049

Class activities and background information for teachers at the secondary level are contained in **An Introduction to Population, Environment, and Society,** a 290-page manual which also includes a student workbook, reprints, an annotated film list, and a bibliography. It is available for $4.50 from:

E-P Education Services, Inc.
625 Orange Street #38
New Haven, CT 06511

An Air Pollution Resource Manual for Junior High School and High School Teachers, prepared under a grant from the National Science Foundation, includes content background, suggested activities, and bibliographic references targeted at the secondary school level. The 354-page document is available at $2.50 per copy from:

Prof. Robert G. Nurnberger
College of General Studies
State University of New York at Albany
Albany, NY 12203

Nothing is to be gained by a further increase in population in the United States, and there are no serious costs but a number of advantages to an orderly reduction in the population growth rate, according to **Population, Resources, and the Environment,** prepared by Resources for the Future, Inc., and available as stock number 5258-00003, for $4.25, from Superintendent of Documents, USGPO.

The Garden Club of America has recently released the 17th edition of its **World Around You** environmental education packet, a curriculum resource for teachers containing eight leaflets: Water Pollution, How to Grow a Garden, Our National Park System, Berried Treasure for Your Birds, Doing is Fun, Ecology for Urban Children, Birdlike Appetites, Recommended Sources for Further Information, and a 32-page Study Guide.

Single copies are available free to teachers and librarians, with additional copies at cost and discounts for large orders, from:

The Conservation Committee
The Garden Club of America
598 Madison Avenue
New York, NY 10022

CECES Publishes Bibliography

Environmental Education—Related Research, 1996-72: An Annotated Bibliography, a 54-page document containing annotations of environmental education research from more than 50 journals, periodicals, and other sources, is now available from:

Center for Environmental Communications
and Education Studies
University of Wisconsin
433 N. Murray Street
Madison, WI 53706

The study, conducted by **Alan M. Voelker, Fred A. Heal,** and **Robert E. Horvat**, lists studies under two primary topics, Environmental Education and Environmental Communications. Studies in education are subdivided into seven categories: curriculum organization; instructional strategies; knowledge, attitudes, and behavior; environmental education programs; outdoor facilities; outdoor recreation; environmental perception. The three categories considered in research in communications are: communications research approaches; case studies in decision-making; knowledge, attitudes, and behavior.

IEE Prepares E.E. Guide Series

The Institute for Environmental Education has announced the publication of an *Environmental Education Guide Series* to assist students, teachers, and administrators in providing ways to encourage discovery and learning in their schools and communities.

The series consists of nine major categories. The first characterizes the Institute for Environmental Education, historically and philosophically, catalogues the services which it performs, and provides a detailed overview of the entire Guide Series.

The next three categories are aimed to specific interests. There is a guide for administrators, one for teachers, and one for workshop directors. Each is detailed and directed at the needs which have been identified for each group and function to develop effective environmental education programs.

The fifth category consists of curriculum activities guides in four areas: Water Pollution Procedures, Water Pollution Equipment, Solid Wastes, and Birds, Bugs, Dogs and Weather, Other activities guides are in planning and development stages.

Case histories comprise the sixth category and consist of studies, evaluation, and technical reports.

Reprints of articles and features, and non-printed media consisting of films and cassettes make up the next two categories.

The final category is a monthly newsletter called *The Investigator*, written by students and teachers in the Cuyahoga River Watershed Project in Northeast Ohio.

An additional feature of the series is a yearly membership subscription which entitles a member to one copy of all documents now printed, plus a copy of all publications to be printed during the 1973-74 school year, including the monthly newsletter. The publications are not copyrighted so as to encourage copying by the users. They are prepared in looseleaf or stapled format to facilitate photocopying.

The guide series is an outgrowth of pilot environmental education programs that have been conducted throughout the United States over the past seven years. The group responsible for the series, the Institute for Environmental Education, is now operating the Cuyahoga Heritage Program which is a National Demonstration Project on environmental education funded by the Office of Environmental Education (HEW).

Any inquiries concerning the Environmental Education Guide Series or the Institute for Environmental Education should be directed to:

Joseph H. Chadbourne, President
Institute for Environmental Education
8911 Euclid Avenue
Cleveland, Ohio 44106
(216) 231-5010

NIU Announces E.E. Programs

Northern Illinois University, through its Department of Outdoor Teacher Education, will sponsor a National Conference on Adventure Education at Lorado Taft Field Campus, Oregon, Illinois, May 6-10, 1974. Participation will be limited to 100, with a maximum of three from each state. Cost for housing, meals, registration, and publications will be $100.

Two British Adventure Educators will be conference leaders, demonstrating how schools can make use of community resources and outdoor environments to integrate subject matter and capture the interest and imagination of high school students who are experience-oriented.

Northern Illinois University has also announced an Outdoor and Environmental Education Foreign Study Program in Great Britain, June 13-July 20, 1974. Cost for Illinois students is $1175; out-of-state students will pay $1275. Included are round trip air fare, most meals, housing, motor coach transportation, some admission fees, and NIU tuition for six hours of undergraduate or graduate credit. Registration is limited to 22 participants.

Additional information on either of these programs may be obtained from:

Dr. Orville Jones
Professor of Outdoor Teacher Education
Lorado Taft Field Campus
Oregon, IL 61061
(815) 732-2111

Film, Materials Released by SEE

Project SEE (Strategies for Environmental Education), a film depicting the activities of the Project's first two years of operation under ESEA, Title III, Section 306, in Wyandotte, Michigan, has been produced by and is available from Eastern Michigan University.

The project is aimed at producing environmentally-educated persons through an innovative process approach. Flexible cross-aged groups of students (Quest teams) study the environment, then produce environmental curriculum materials which they teach to others. These curriculum units have been produced for, and taught to, target populations from kindergarten through adult.

The film stresses the documentation of curriculum construction and teaching by the students, and their reactions to the program. The 32-minute, color, sound film may be obtained for $25 (rental) or $150 (purchase) from:

Prof. Frank Sinclair
Department of Biology
Eastern Michigan University
Ypsilanti, MI 48197

Requests for available curriculum units and an accompanying handbook, all free except for 2x2 slides which may be duplicated but must be returned, should be addressed to:

T. R. Sparrow, Director
Project SEE
639 Oak Street
Wyandotte, MI 48192

USOE/EE Renews Grant Competition

A total of $1.9 million will be distributed to approximately 100 successful applicants at the conclusion of a grants competition being conducted under the Environmental Education Act during the current fiscal year, according to a recent announcement from the U. S. Office of Environmental Education.

Application materials were scheduled to be ready for distribution in January 1974; deadline for completed applications was not announced as this publication went to press, but was expected to be in February or early March.

Guidelines for applications were expected to be the same as, or quite similar to, those utilized during the competition for fiscal year 1973 awards, in which 54 projects shared in $1.2 million in grants. A USOE/EE spokesman indicated that, as in the past, model demonstration programs designed to advance the "state of the art" of environmental education will be the only ones receiving consideration.

More information is available from:

Environmental Education
U. S. Office of Education
400 Maryland Ave., S. W.
Washington, D.C. 20202
(202) 755-7682

SMEAC

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